

No. 20510

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IN THE

United States Court of Appeals

FOR THE NINTH CIRCUIT

AEROTEC INDUSTRIES OF CALIFORNIA, a corporation;
AEROTEC INDUSTRIES, INC., a corporation; UNIVER-
SAL OIL PRODUCTS COMPANY, a corporation,

Defendants-Appellants,

vs.

PACIFIC SCIENTIFIC COMPANY, a corporation,

Plaintiff-Appellee.

BRIEF FOR PLAINTIFF-APPELLEE.

C. RUSSELL HALE,
D. BRUCE PROUT, of
CHRISTIE, PARKER & HALE,
201 South Lake Avenue,
Pasadena, Calif. 91101,

Attorneys for Appellee.

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BRIEF FOR PLAINTIFF-APPELLEE.

Introduction.

This action involves a contribution to science and a contribution to human welfare made by plaintiff, and defendants' attempt to destroy plaintiff's proprietary position with respect to that contribution.

Plaintiff discovered that more effective protection for pilots for aircraft and the like can be achieved by sensing abnormal movements of the person to be protected and locking him in his seat when such movements exceed a predetermined acceleration, rather than by the then conventional way of sensing abnormal movements of the aircraft or vehicle to cause locking.

Plaintiff's developments are characterized as pilot-sensitive or "man-sensitive safety apparatus" because they sense and respond to acceleration or movement of the man with respect to his seat. Prior art devices are

characterized as “vehicle-sensitive safety apparatus” because they sense and respond to movement of the vehicle and not to movement of the man.

Plaintiff was the pioneer in the development of safety apparatus which is responsive to acceleration of the seat occupant. When plaintiff first submitted proposals to the Air Force on this new approach, they were met with skepticism. This reluctance on the part of the Air Force was overcome after the performance of the safety apparatus was established.

Man-sensitive safety apparatus has widespread use today. The widespread use exists not only in the United States, but widespread use is found in the other major industrial countries of the world. It has largely supplanted the prior art vehicle sensitive safety apparatus.

Plaintiff followed the statutory procedures for protecting its inventions, and through the years built a patent position and a license position on the inventions. Plaintiff's patents have been respected by virtually all of the industry, with the exception of defendants.

Years after plaintiff introduced its man-sensitive safety apparatus on the market and obtained widespread use thereof, defendants acquired models of plaintiff's apparatus. Defendants subsequently copied the essential features of plaintiff's patented inventions into a man-sensitive safety apparatus and introduced their own product on the market.

Plaintiff immediately gave notice to defendants of plaintiff's patent rights, however, defendants refused to honor them. Therefore, plaintiff brought this action to enforce its patent rights and to protect its proprietary patent position and license position.

Defendants, first having copied the essential features of plaintiff's inventions, now in this action seek to destroy not only plaintiff's patent position but plaintiff's

license position. Defendants seek to do so by throwing up a smoke screen consisting of a large number of technical defenses which are without merit and are not founded in fact.

During the trial plaintiff presented testimony from virtually everyone that had anything to do with the development and the commercial success of the inventions. This included the inventors, plaintiff's president, plaintiff's director of engineering, a competitor, purchasers and users of the apparatus, and plaintiff's employees who analyzed and tested defendants' apparatus.

In contrast, defendants did not produce a single witness who had direct knowledge of the facts. Instead, defendants presented testimony from two witnesses who were employed by its lawyers in California just before the trial started. One of the witnesses is a lawyer and the other is a graduate student at a university. These witnesses had no prior experience in the art or industry to which the inventions pertain. These witnesses apparently did not even visit defendants' quarters in Connecticut where defendants' apparatus was developed and is manufactured, nor did they receive any information directly from defendants. These witnesses received only such information as defendants' lawyers turned over to them.

These witnesses of defendants disagreed with statements made prior to this litigation in defendants' own patent which describes defendants' version of the apparatus in suit, and they disagreed with statements made prior to this litigation in defendants' technical brochures and advertising. This was because defendants' witnesses did not have knowledge of the true facts, and they were willing to testify in accordance with the exigency of the day.

During the trial and in their memoranda before and after trial defendants presented virtually every defense

known to patent law. Defendants' opening brief in this appeal does the same thing, and in addition they seek to try *de novo* virtually all of the questions of fact.

Defendants' CONCISE STATEMENT OF POINTS ON APPEAL and Supplement thereto under Rule 17(6) lists as error most of the findings of fact and all of the conclusions of law concerning the merits made by the Trial Court. These were incorporated by reference into defendants' opening brief on page 11, and they are restated in slightly different language on pages 11-16 of that brief. Many of the asserted errors are frivolous and are based upon misrepresentations as to uncontradicted facts. For example, one of the restated specification of errors in defendants' brief states:

"7. The Court erred in Finding 48 holding that the uncited Ham, Burdon, and Ricketts patents were not as closely related to plaintiff's invention as the cited art (R936), because the Trial Court failed to note that the file history . . . shows that the cited art only showed *velocity-responsive* safety devices, whereas, the Ham, Burdon and Ricketts patents show *acceleration-responsive* devices to which the claims in suit are drawn. That which the Patent Office believed to be a distinction is now demonstrated to be *old*."

Defendants' assertion is directly contrary to the uncontradicted testimony of their own witnesses, Mr. Gabriel, who testified on direct examination that Patent No. 2,370,921 to Sharpe [Ex. D] was cited by the Patent Office against the basic patent in suit [Ex. 1] and is *acceleration-responsive* [R. Vol. III, pp. 1320, 1321].

The Patent Office found plaintiff's inventions to be patentable over the Sharpe patent, and the inventions are certainly patentable over Ham, Burdon and Ricketts.

By way of further example, defendants' CONCISE STATEMENT OF POINTS ON APPEAL UNDER RULE 17(6) states:

"22. The District Court erred in finding that the inventors of the basic patent No. 2,845,233 were the first to conceive the technique of sensing the movement of a man with respect to his seat to cause him to be locked in his seat when abnormal acceleration is sensed, and the inventors were the first to follow up this concept with a model embodying the technique. (Finding of Fact No. 42)."

Not one scintilla of evidence exists that any one prior to the inventors of the patents in suit conceived of the technique of sensing the movement of a man with respect to his seat to cause him to be locked in his seat when abnormal acceleration is sensed.

Defendants also make erroneous representations as to what they think the law is or should be. By way of example, defendants represent on page 58 of their brief to this Court, just as they did to the District Court below, that file wrapper estoppel in one patent carries over to another patent. Defendants apparently could find no authority to support their erroneous contention and attempt to pull themselves up by their bootstraps by citing the testimony of their own patent expert, Mr. Gabriel, for authority. The law is directly *contra* to Mr. Gabriel's testimony.

In view of defendants' attempt to controvert most of the Trial Court's findings of fact as well as the conclusions of law, plaintiff will review the factual background so as to present the essential facts that were developed during the trial.

Also, Defendants' Appendix B fails to show where all of plaintiff's exhibits were introduced into evidence in accordance with Rule 18(f), [*i.e.*, the high speed

movie of Ex. 116]. Appendix I is included herewith giving record pages where these exhibits were entered into evidence.

Statement of Facts and the Manner in Which the Questions on This Appeal Arose.

A. The Patents in Suit.

The patents in suit are United States Patents No. 2,845,233 [Ex. 1] and 2,845,234 [Ex. 2; R. Vol. III, p. 21], both of which issued on July 29, 1958. The District Court found that the patent '233 is a basic patent, with broad claims covering also the '234 patented device, and the patent '234 is an improvement thereof.

The patented inventions are safety apparatus for protecting a man in his seat. The inventions are a system consisting of an inertia reel, adapted to be mounted on the back of a seat, connected to a shoulder strap or cable, which is adapted to be coupled to the body of a seat occupant [R. Vol. III, p. 532]. Appendix B shows photographs of Exhibits 6, 7, 13 and 95 which are plaintiff's and defendants' systems. Appendix C contains a reproduction of Exhibits 70 and 72 which show how the systems are mounted on a seat in the two patents. Appendix D contains a reproduction of Exhibits 81 and 82 showing how defendants' devices are mounted on a seat. In operation, normal movement of the seat occupant causes the strap or cable to be pulled out of the reel or wound back in the reel as the seat occupant moves forward and backward with respect to the back of the seat. In this manner, the seat occupant is given freedom to operate the controls, etc., of the vehicle in which he is riding. However, in the event of an abnormal movement of the seat occupant with respect to the seat, such as would occur in the event of a crash or a violent maneuver or the like, the inertia reel operates to lock and prevent further movement of the strap out of the reel to securely hold the occupant in the seat.

B. The Prior Art.

The prior art safety apparatus for protecting a man in his seat sense the abnormal movement of the vehicle in which the device is mounted to lock the strap, and for this reason is called a "vehicle-sensitive safety apparatus" [R. Vol. III, p. 30]. In contrast, the patented safety apparatus determines when to lock up by sensing the abnormal movement of the seat occupant away from the seat, and therefore is called a "man-sensitive safety apparatus" [R. Vol. III, p. 27]. Plaintiff's patented invention responds to the very thing which is to be protected, the seat occupant, rather than responding to the movement of some other object, such as the vehicle [R. Vol. III, p. 253].

Prior to the patented man-sensitive safety apparatus, the only safety apparatus in commercial use for protecting a man in a seat was of the vehicle-sensitive type [R. Vol. III, p. 32].

Defendants introduced in evidence what it termed a Prior Art Book of Patents [Ex. D]. Out of fifteen prior patents in this exhibit four are directed to the prior vehicle-sensitive safety apparatus (Geohegan, *et al.* — 2,403,653, Nordmark — 2,434,119, Nordmark — 2,701,693, Heinemann — 2,708,555) five are directed to trolley catchers for streetcars (Fairchild — 657,342, Ham — 700,763, Burdon — 888,418, Porter — 1,122,420, Ricketts — 1,393,570), three are directed to fire escape apparatus and apparatus for protecting against falls into space (Scheuer — 1,037,333, Caouette — 1,308,480, Trouin — 2,546,202), one is directed to a cow-kicker (Sharpe — 2,370,921) and two are directed to fishing reels (Foss — 1,744,461, Rutledge — 2,324,324). The present inventions differ from these prior patents in a number of respects. However, suffice it to say at this point that the inventions are directed to safety apparatus which senses abnormal acceleration of a man

relative to his seat to cause him to be locked in his seat, whereas, these prior patents do not even remotely suggest this. All of these patents, except the trolley catcher patents, were specifically cited by the Patent Office against one or the other or both of the patents in suit and the patents in suit were allowed thereover [Exs. 1, 2].

Appendix E contains a reproduction of figures 1 and 3 from the Burdon patent and illustrate how the trolley catchers appear on a trolley car.

Out of these fifteen patents, defendants primarily rely on the vehicle-sensitive safety apparatus disclosed in the Nordmark patent '693 and the Geohegan patent and the antiquated trolley catcher devices shown in the Ham, Burdon and Ricketts patents. The applications for these trolley catcher patents were filed around the turn of this century.

C. The Background of the Patents in Suit; the Deficiencies of the Prior Art and Their Elimination by the Inventions in Suit.

Prior to plaintiff's patented apparatus lives were being lost because of the inadequacies of the prior art apparatus. In this regard, Mr. Pfankuch, a co-inventor of the basic patent '233 in suit, related his meeting in the early 1950's at Wright Field Air Force Base with Mr. Redman, of the U.S. Air Force, who told Mr. Pfankuch:

"... that the Air Force was losing a rather large number of pilots due to the fact that when an airplane would make a belly type landing or any kind of landing which would result in a crash, that they found that if the airplane did not crash in a straightforward position, that frequently they would suffer pilot fatalities; if the airplane would skew and go sideways, and strike something, . .

their investigations brought out that the reel did not reliably lock to restrain the pilot.

“Q. And what type of reel was this that was referred to? A. Well, this was strictly a vehicle-sensitive reel, one which operated on deceleration of the vehicle, the aircraft.” [R. Vol. III, pp. 271-272].

Therefore, a multidirectional safety apparatus was needed to respond to crashes which might occur in any direction.

Other deficiencies of the prior vehicle-sensitive safety apparatus were noted by Mr. Rischard, formerly Chief of the Interiors Design Section of Douglas Aircraft Company, first a user of the vehicle-sensitive devices supplied by American Seating Company, and later on a user of the plaintiff's man-sensitive devices. First, he testified that the vehicle-sensitive devices were unreliable [R. Vol. III, p. 249]. Second, he testified that there is no acceptable way for a pilot to check the vehicle-sensitive devices before takeoff, saying:

“I don't think there is any way to really test it. I remember some of the mechanics would kick the back of the seat in an attempt to cause an acceleration force and make it lock, but this is not at all a good way to try to do something of that sort.” [R. Vol. III, p. 249].

At about the same time that Mr. Pfankuch was made aware of the deficiencies of the prior art and the need for a multidirectional safety apparatus, American Seating Company, the sole manufacturer of the prior art vehicle-sensitive safety apparatus at that time [R. Vol. III, pp. 30, 203], was also made aware of the inadequacies of the existing vehicle-sensitive apparatus [R. Vol. III, p. 207]. Therefore, in an effort to protect its position as the leading supplier of such equipment,

American Seating Company set out on an extensive development program through the years, searching for a multidirectional safety apparatus and experimenting with pendulums and a permanent magnet to hold a locking member out of engagement [R. Vol. III, p. 205]. As a result, two types of devices developed, one an electrical type of device and the other a magnetic type of device [R. Vol. III, p. 206]. However, both of these devices were of the vehicle-sensitive type [R. Vol. III, p. 206]. The Nordmark patent '693 [Ex. D], one of the patents defendants primarily rely upon, shows the magnetic type of device developed by American Seating Company [R. Vol. III, p. 223]. This patent has an object to lock "by inertia under varidirectional *impact of the vehicle*" [Col. 1, line 43] and uses magnetic inserts and a pendulum [Col. 4, lines 80-85]. This patent was filed in February, 1951 before plaintiff's applications for the patents in suit were filed in 1953.

Highly qualified engineers, all of them holding a considerable number of patents themselves, worked on the American Seating Company development program [R. Vol. III, pp. 208-209] and yet neither the magnetic device nor the electrical device were accepted to any great extent by the industry. As to the electrical device, the only one made commercially, Mr. Henrikson, Manager of Research and Development for American Seating Company, stated:

"... The Armed Services showed a reluctance to wire the devices in, which was necessary. They ... had not been used to having the safety devices wired into the power plant of the aeroplane. So they had considerable reluctance to purchase these reels and wire them in." [R. Vol. III, p. 208].

After hearing of the inadequacies of the vehicle-sensitive safety apparatus, Mr. Redman was again contacted and as related by Mr. Pfankuch,

“ . . . I suggested to him that I had an idea for a new type of reel which might overcome this problem. . . . I merely told him that I was thinking of a type of device which would be sensitive to movement of the man, the seat occupant, a man-sensitive type of device rather than a vehicle-sensitive type. . . . After I returned to our plant, we immediately set about designing this reel and making a model, a prototype.” [R. Vol. III, pp. 272-273].

This prototype model was the embryo of the man-sensitive safety apparatus covered by the basic patent '233 [R. Vol. III, p. 279]. Both patents in suit were filed in 1953.

In 1954, after its unsuccessful attempts with multiple direction vehicle-sensitive safety apparatus, American Seating Company became aware of plaintiff's man-sensitive safety apparatus [R. Vol. III, p. 210]. Prompted by the acceptance of plaintiff's devices over its devices, American Seating Company started developing a man-sensitive safety apparatus of its own in order to be competitive with plaintiff's devices [R. Vol. III, pp. 210-211]. This development was successful and American Seating Company then voluntarily requested a license from plaintiff for the right to manufacture under the two patents in suit [R. Vol. III, p. 140]. American Seating Company requested a license because its patent counsel brought the patents to the attention of management and advised that their apparatus infringed the patents in suit. The license was granted [R. Vol. III, pp. 211-212, Ex. 17].

Mr. Henrikson testified that the man-sensitive safety apparatus made by plaintiff and American Seating Company represent "a step forward" over the earlier devices [R. Vol. III, p. 218].

Numerous important features of the man-sensitive safety apparatus make it desirable over commercial vehicle-sensitive safety apparatus. Mr. Henrikson testified that the following features are important in contributing to its sales: First, is its "multidirectional operation" [R. Vol. III, p. 219]; second, it is not necessary to wire the device into the power system of an airplane [R. Vol. III, p. 219]; third, "it is so easy for the pilot to tug on the strap before take off and to reassure himself that the mechanism is operative." [R. Vol. III p. 219].

As a fourth feature, Mr. Rischard stated that the main feature making the plaintiff's device acceptable for use in ejection seat applications is its "capability of sensing the motion of the man with respect to the seat and not worrying about what the aircraft is doing at the time." [R. Vol. III, pp. 253-254].

D. Users Were at First Skeptical of the Inventions, However, Once the Principle Was Accepted a New Industry Was Founded and the Inventions Largely Supplanted the Prior Art Devices.

Mr. Pfankuch showed a prototype model of the invention to the Air Force in 1950 or 1951 but the Air Force was at first skeptical of the principle involved [R. Vol. III, p. 276, 280] because the man-sensitive feature was a radical departure from the vehicle-sensitive devices that they had been using [R. Vol. III, p. 276]. It was thought that it would inadvertently lock or would not reliably lock up. Extensive tests were run at Edwards Air Force Base by plaintiff and the Air Force [R. Vol. III, p. 277] and persons at Wright

Field tried to trick the device in a seat [R. Vol. III, p. 277]. It was not until one to two years after the prototype model was shown that the Air Force finally accepted the principle of operation and issued a specification covering one of plaintiff's apparatus [R. Vol. III, p. 280, 281].

The plaintiff's sales of man-sensitive safety apparatus started in 1954 and went up on a steady growth curve in spite of the fact that in 1957 there was a severe cut back on manned aircraft, the principal users of the apparatus [R. Vol. III, p. 51].

In contrast to the steady upward growth of plaintiff's sales from 1954 to 1963, sales of vehicle-sensitive apparatus by American Seating Company declined rapidly over the very same period of time, going from yearly sales of about \$700,000 in 1956 down to under \$150,000 in 1963. Reproductions of Exhibit 24, a graph plotting plaintiff's increasing sales and Exhibit 62, a graph plotting American Seating Company's decreasing sales are included in Appendix A.

Mr. Henrikson testified that this decline in his company's sales is attributed to a substantial degree to plaintiff's man-sensitive safety apparatus which captured a substantial part of the market [R. Vol. III, p. 217].

Subsequent to the filing date of the applications for the patents in suit in 1953, and subsequent to the introduction into the market by plaintiff of its apparatus in 1954, numerous companies started working on designs of man-sensitive safety apparatus of their own. Plaintiff continued to develop improvements in this area. Plaintiff's first production reel was the HR30 [Ex. 7] and is shown in the '234 patent [R. Vol. III, p. 27, 702]. Exhibit 24 (See Appendix A) lists eight different models of man-sensitive safety apparatus plaintiff has sold and four of these devices, some of

which are ballistically operated, are Exhibits 6, 8, 9 and 10 [R. Vol. III, p. 26-28].

Numerous patents dealing with man-sensitive safety apparatus were filed by plaintiff and other companies and some companies introduced their own versions thereof into the market. For example, between 1956 and 1961 thirteen applications for U. S. patents (now issued) were filed. These patents are found in Exhibits 66 and 114 and were identified by Mr. Glauser as disclosing man-sensitive safety apparatus [R. Vol. III, p. 749]. Plaintiff itself has a total of nine issued U. S. patents and nine U. S. applications pending in the United States Patent Office directed to these devices [R. Vol. III, pp. 71, 72].

American Seating Company developed a man-sensitive safety apparatus of its own design [R. Vol. III, p. 212], introduced it into the market, and took out its license with plaintiff in November, 1959 [R. Vol. III, p. 211, Ex. 17]. Hardman Tool and Engineering took out its license in 1963 [Ex. 18].

These man-sensitive devices are not identical but have many variations of the basic man-sensitive features of the patented devices. Appendix F shows selected figures from six of the patents in Exhibit 114 to illustrate the many forms in which man-sensitive safety apparatus have been developed.

Plaintiff's man-sensitive safety apparatus are widely accepted and are being used on both military and commercial vehicles, including manned aircraft, space aircraft, fighters, commercial transports and helicopters [R. Vol. III, pp. 62-63].

All of this development on man-sensitive devices occurred after plaintiff entered the market with its patented devices in 1954. It is apparent that it was plaintiff's pioneering effort in conceiving, developing man-sensitive safety apparatus and introducing it into the

market that prompted further development on these devices and not the antiquated trolley catcher devices which defendants found.

In addition to the two U. S. licenses, plaintiff has acquired nine foreign patents filed under the International Convention corresponding to the two patents in suit [R. Vol. III, pp. 76-78, Exs. 33, 34, 35, 36, 37, 38, 39, 40, 41] and has granted licenses thereunder to companies in France [SARMA, Exs. 22, 23], Great Britain [Teleflex, Exs. 19, 20], and Japan [Shimadzu, Ex. 21]. Substantial royalties of approximately \$10,000 have been paid to plaintiff under the U. S. licenses and \$50,000 under the foreign licenses [R. Vol. III, p. 39, 45].

Mr. McAllister, President of plaintiff, estimates that about ninety percent (90%) of the total world market of safety apparatus for protecting a man in his seat is now filled by the man-sensitive type [R. Vol. III, p. 68].

E. The Infringement by Defendants.

On May 9, 1956 the defendants were shipped four of plaintiff's Model HR30 (the one disclosed in the improvement patent '234), and payment was received evidencing defendants' receipt of the devices [R. Vol. III, pp. 90-91]. About a year later Mr. Pfankuch demonstrated plaintiffs commercial Model 0101, to Mr. Lautier, Vice President of defendant, Aerotec Industries, Inc. [R. Vol. III, p. 285]. The external configuration of the commercial Model 0101 is essentially the same as the military Model 0106—Ex. 6 [R. Vol. III, pp. 288, 105]. Plaintiff's military Model 0106 was developed because plaintiff expected it to be the "next generation" model [R. Vol. III, pp. 134-135]. This demonstrating took place during a meeting with aircraft and seat manufacturers in about 1957 [R. Vol. III, p. 285-286].

In 1958, approximately two years after defendants received the plaintiff's Model HR30 and about one year after Mr. Pfankuch demonstrated plaintiff's Model 0101 to Mr. Lautier, defendants apparently cancelled an order for a large quantity of plaintiff's Model HR30 [R. Vol. III, p. 131] and then came out on the market with its own man-sensitive safety apparatus. [R. Vol. III, pp. 82-86, 91, 92]. These devices have external case configurations closely resembling that of plaintiff's next generation Model 0101 (the one shown to Mr. Lautier).

Appendix B contains photographs of plaintiff's Model HR30 [Ex. 7] first sold in 1954 and the next generation model 0106 [Ex. 6] first sold in 1955 (and which closely resembles the commercial Model 0101 shown to Mr. Lautier in 1957) and two of the defendants' devices [Exs. 95 and 13].

Defendants have manufactured man-sensitive safety apparatus and have identified them by four basic model numbers, to wit: Models 94, 95, 102 and 65A [R. Vol. III, pp. 1098-1110]. The Models 94 and 102 are single reel units as seen in Exhibits 82 and 95 and Models 95 and 65A are double reel units as seen in Exhibits 81 and 13 (See Appendix D). All of defendants' models have basically the same locking mechanism, function in the same manner and produce the same result [R. Vol. III, pp. 1098-1110, assembly drawings of Exs. 54, 55, 56 and 57, R. Vol. III, pp. 579-580]. Exhibits 84 and 85 are large colored charts illustrating the locking mechanisms of defendants' devices [R. Vol. III, p. 588]. Colored reproductions of Exhibits 81, 82, 84 and 85 are included in Appendix D exactly as they appear in the record.

Defendants were charged with infringement of Claims 7 and 9 of the basic patent '233 and claims 1 and 5 of the improvement patent '234.

Defendants' own patent No. 2,982,492 [Ex. 66] describes defendants' devices in suit in practically the very same terms as the four claims in suit. Defendants' patent is directed to detailed features of their device and issued on May 2, 1961 over one and one-half years before this action was filed.

Representations were also made to the trade in sales and technical literature, issued by defendants, as to how defendants' devices function and operate [Exs. 48-53, Ex. 124—Answers to Interrogatories Nos. 25, 26, R. Vol. III, p. 513-516]. The description contained therein is very similar to that employed in the four claims in suit. This literature was published long before this litigation commenced.

Thus, before this litigation defendants admitted by their own representations to the patent office and to the public that their infringing devices have the same elements and function in the same manner as the inventions in suit.

Plaintiff's expert found each of the elements of the four claims in suit to be contained in defendants' devices [R. Vol. III, p. 691-698, 707-714]. The District Court found claims 7 and 9 of patent '233 and claims 1 and 5 of patent '234 valid and infringed by defendants' Models 65A, 94, 95 and 102 safety reels [See No. 72, Findings of Fact, R. Vol. II, p. 928].

Summary of Argument.

Plaintiff's invention is apparatus which is responsive to movement of a seat occupant with respect to his seat to permit ordinary movement but to lock him in the seat when the movement exceeds a predetermined acceleration. The phrase "man-sensitive safety apparatus" aptly describes plaintiff's invention and distinguishes it over the prior art vehicle-sensitive apparatus. The invention is not merely a cable locking mechanism, as asserted by defendants.

Plaintiff was the pioneer in the development of man-sensitive safety apparatus and plaintiff's patents are basic and entitled to wide scope.

Plaintiff's patents meet the Constitutional standard for patentability. They serve to advance the arts and sciences, and the inventions save lives. The patented inventions produce results which were unexpected at the time they were first developed. The patented inventions are not merely an old combination or a new use for an old device, as asserted by defendants.

Defendants' patent covers the detailed arrangement of its man-sensitive safety apparatus, and the apparatus is described in defendants' patent in the same manner that plaintiff's patent claims delineate the patented invention.

Defendants did not consider the trolley catcher patents to be prior art with respect to the device covered by their patent, even though they discovered these patents many months before their patent issued because they had a duty to call the trolley catcher patents to the attention of the patent office and they did not do so.

Defendants' devices employ the same elements which function in the same manner to produce substantially the same result as the apparatus defined by plaintiff's patent claims.

Plaintiff produced as witnesses virtually everyone that had anything to do with its inventions. Nearly all of these witnesses are persons skilled in the art in question. Defendants' witnesses attempted to controvert most of the testimony of plaintiff's witnesses. However, defendants' witnesses had no prior experience in

the art, and had not even tested plaintiff's or defendants' devices, much less the prior art devices or the nonanalogous art devices upon which they based much of their testimony.

The trial court considered all the evidence presented and made detailed findings of fact as to all the material issues in this case. Defendants now seek to try *de novo* nearly all of these findings.

Under such circumstances the findings of fact by the Trial Court are entitled to very great weight.

One of defendants' experts was a patent lawyer who testified as to many matters of law. These are matters for the court to resolve, and a witness's statements as to such matters is of little or no significance.

The only other of defendants' witnesses was a graduate student whose testimony was directly contra to what defendants had long represented the mode of operation of their device to be. It was shown that his testimony was based on incorrect assumptions, incorrect constants, and approximations that should not have been made. The testimony of such a witness should be attributed little if any significance.

ARGUMENT.

I.

The Trial Court's Findings Are Entitled to Especially Great Weight Under the Circumstances Here.

On July 12, 1965 the Trial Court filed an Opinion which set forth many of the facts. On July 30, 1965 the Trial Court signed the Findings of Fact and Conclusions of Law which were prepared by counsel for plaintiff. On August 23, 1965 the Trial Court heard defendants' objections and suggested modifications to the findings, and the court refused to modify them.

Defendants now assert that 48 out of the 73 findings of fact are erroneous. In effect defendants are asserting that all of the findings are erroneous except those relating to formalities, such as the parties and the jurisdiction of the court.

Such a specification of errors is an attempt to retry the entire case before this Court, and it leads to such frivolous contentions as:

"12. The District Court erred in finding that Defendants urged and their witnesses testified that their safety apparatus has a different mode of operation in that their apparatus responds solely to velocity and not to acceleration of the seat occupant, as required by the patented apparatus (Finding of fact No. 27)."

However, defendants' own trial memorandum specifically states:

"Moreover, defendants' device has an entirely different mode of operation than plaintiff's patented safety devices. Defendants' device is responsive solely to velocity or centrifugal force when the device locks the cable from further outward movement." [R. Vol. II, p. 438-439].

This inconsistency and many others arose because defendants would not produce one witness from their home plant in Connecticut who is familiar with their devices and their activities despite plaintiff's request that Mr. Lautier, a Vice President who is familiar with their devices and an inventor of one version of defendants' devices appear and testify at trial [Motion for Appearance at Trial, R. Vol. I, p. 458]. Instead, defendants produced as witnesses a graduate student, Mr. Swedlow, and a patent lawyer, Mr. Gabriel, both of whom were employed by defendants' counsel shortly before the trial to serve as experts.

Mr. Swedlow testified:

“Q. Did defendants call your attention to any tests they had conducted prior to this litigation?

A. Defendants' tests?

Q. Yes. A. I don't recall any offhand, no.

Q. Prior to this litigation did you see any tests on the Aerotec device at all? A. No.

Q. Have you seen any tests of the Aerotec device even during the litigation? A. Just the tests that had been either exemplified, or in court, the movie itself, but I have seen no tests.

Q. Just the tests plaintiffs put on as part of their case, those are the only tests you have seen?

A. Yes.

Q. You never conducted any tests on the device yourself? A. No, I have not.

Q. Mr. Swedlow, have you seen any other analysis of the Aerotec device besides the one you just presented here, Exhibit AR? A. Well, there is Mr. Luttrell's analysis, and the analysis, or the computations that Mr. Glauser and Mr. Ay did together, I presume.

Q. In other words, the defense did not tell you or show you any analysis which they had performed on the device? A. No, sir.

Q. Did you perform any analysis of the device yourself prior to this AR? A. I had thought about the kind of motions that might ensue, but I can't say that I performed an analysis." [R. Vol. III, pp. 1366-1367].

On cross-examination Mr. Gabriel testified:

"Q. You say you were called in this case the first of October. Who called you into this case? A. I didn't say that. I was asked by Mr. Poms if I would testify as an expert witness in the case and attend court as an expert witness. That was, I believe, early in September.

Q. The first part of September? A. Early in September. I don't remember the exact date.

Q. Did the defendants show you any analysis which they had performed prior to that time? A. No, they did not.

Q. Have you ever seen any tests which the defendants or defendants' counsel have made on the Aerotec device, prior to your being called in the case the first part of September? A. No, I have not. The only tests I have seen have been performed right here in court.

Q. The same applies for analysis? A. Yes. The only analysis that I had seen prior to attending court was the Luttrell report, aside from my own working with force diagrams. I saw no detailed analysis other than the Luttrell report before court actually convened on the case." [R. Vol. 14, pp. 1541-1542].

The trial started on October 6, 1964, about one month after Mr. Gabriel was employed.

These two witnesses on behalf of defendants gave much testimony, but it was all of a theoretical nature. Obviously the witnesses had no practical knowledge of the subject matter.

In contrast, plaintiff produced as witnesses its president, Mr. McAllister; its director of engineering, Mr. Glauser; two of the three inventors of plaintiff's patents, Messrs. Pfankuch and Wrighton (the third inventor died before this action was instituted); two of its technical people, Messrs. Ay and Luttrell; the Manager of Research and Development for the competitor, American Seating Company, Mr. Henrikson; the former Chief of the Interiors Design Section for Douglas Aircraft Company, Mr. Rischard; a racing car driver who uses the safety apparatus, Mr. Unser; and an independent consultant with many years of experience, Dr. Sjogren.

With respect to the use of patent lawyers as experts, the book entitled "Patent Law Annual," published in 1966 by Matthew Bender & Company, states on page 128:

"Judge Yankwich of the federal district court sitting in Los Angeles, in his paper entitled 'On the Use of Experts,' said: 'Equally unconvincing is the *patent attorney expert*. He may be trained in the law or he may be scientifically trained. And if he is *not actually engaged* in scientific work, his testimony is, usually, that of a special pleader, trying to prove a cause.' He observed at another point that such special pleaders appear '*presumably* to explain the invention to the court, but '*actually* to substitute the knowledge of the expert for the knowledge of the court derived either from ordinary experience or from a study of the letters patent themselves. This is merely an attempt to get around the decisions which make the Judge his own expert in such cases.' (Emphasis by Judge Yankwich.)"

Plaintiff's witnesses had intimate knowledge of the inventions in suit and the art involved. Defendants'

witnesses had no first hand knowledge of any of the facts. They apparently had not even visited defendants' facilities where the devices were manufactured.

Under such circumstances, it is submitted that the Trial Court's findings are entitled to especially great weight.

The findings which alleged to be in error by defendants are set forth in Appendix H hereto, along with the record references to the evidence supporting the challenged finding, as required by Rule 18-3.

II.

Infringement Is Clearly Established in the Record.

A. The Claims of Plaintiff's Patents Read Directly Upon Defendants' Devices and Thus Are Directly Infringed.

Each claim of plaintiff's patents defines the metes and bounds of the subject-matter covered by the claim. Each claim stands on its own. Infringement of a single claim constitutes infringement of the patent in which the claim appears.

The claims which defendants infringe directly are claims 7 and 9 of the basic patent '233 and claims 1 and 5 of the improvement patent '234. These claims are of broad scope in keeping with the pioneer character and nature of plaintiff's invention and *define in various terms a safety apparatus for preventing a seat occupant of a vehicle from being thrown from his seat, an inertia lock device adapted to be mounted on the back of the seat of a vehicle including a reel, a flexible connector adapted to be coupled to the seat occupant and wound on the reel, an inertia member turnably movable with respect to the reel, means for coupling the inertia member with the reel, and locking means* (or means for stopping the rotation of the reel), with the inertia member being operable by inertia to cause the locking means to lock the flexible connector when the

flexible connector is pulled outwardly of the housing *by an abnormal movement of the seat occupant* whereby the seat occupant is prevented from being dislodged from his seat [Exs. 1, 2, No. 24, Findings of Fact].

Patent '234 is an improvement over the basic patent '233 and claims 1 and 5 of the improvement patent '234 differ from the claims of the basic patent '233 by defining, in various terms, the locking means (or means for stopping rotation of the reel) being operable in response to the *relative rotation between the reel and the inertia member* for stopping rotation of the reel to thereby restrain the movement of the body in the vehicle. Thus, the improvement patent '234 is directed to the feature of sensing relative rotation between the reel and the inertia member for causing lock up [Ex. 2, No. 25, Findings of Fact].

The defendants' devices employ the very same structure and perform the very same functions as set forth above and as defined in claims 7 and 9 of the basic patent '233 and claims 1 and 5 of the improvement patent '234.

Significant is the fact that the *defendants' own patent* [Ex. 66] *describes the defendants' device in practically the very same terms* and Mr. Lautier, defendants' Vice President stated in answers to interrogatories that this patent describes "the operation and function peculiar" to the defendants' devices [R. Vol. III, p. 1102, Ex. 127—Answer to Interrogatory No. 41].

Under the portion of the defendants' patent [Ex. 66] entitled "Operation", it is stated in essence, with reference to Figure 3 of the patent, that defendants' safety reels allow normal occupant movement until *abnormal acceleration* is caused by a crash; at which time the *acceleration of the occupant imparts an acceleration* to the reel. This *acceleration* of the reel is relative to the locking pawls of defendants' device which have *inertia*

and which *resist rotation* of the reel to such a degree that these pawls engage a toothed locking ring which positively locks further rotation of the reel.

Appendix J hereto contains quotations from defendants patent, Ex. 66, which describe their device in the foregoing terms. These quotations appear at Col. 3, line 75 through Col. 4, line 2 and Col. 4, line 10 through line 49 under the heading "Operation" as set forth in Appendix J.

Defendants also made representations in sales and technical materials issued by defendants, such as product specifications, installation specifications, and published and copyrighted technical journals that their devices are responsive to acceleration of the seat occupant and therefore have this same mode of operation [Exs. 48-53, Ex. 124—Answers to Interrogatories Nos. 25 and 26]. For example, the March, 1959 issue of the "Project Engineer" (copyrighted in 1959) [Ex. 51] states at pages 7-8:

"The reel functions automatically in any attitude so that if the wearer's body is thrown forward or upward with a sufficient accelerative "G" force, such as might be experienced during gusty conditions, the reel will lock, then unlock when the tension or load is released from the harness webbing. However, the belt rewind tension has a constant non-restrictive loading of approximately one pound so that the harness may be comfortably worn continuously while occupying crew position with unrestricted freedom of body movement. The reel will not lock automatically under crew members' normal body movements while performing flight activities."

Thus, before this litigation commenced, defendants admitted by their own representations before the Patent Office and the public through their patent, as well as in published and copyrighted articles, that their devices

are constructed and operate in accordance with the inventions in suit.

The safety apparatus of the basic patent '233 is shown in Exhibits 70, 71, 72, 73 and 74 which are enlarged colored drawings of Figures 1, 1A, 2, 3 and 5 of the basic patent '233 [R. Vol. III, pp. 529, 530, 532, 534]. The safety apparatus of the improvement patent '234 is shown in Exhibits 75, 76, 77, 78, 79 and 80 which are enlarged colored reproductions of Figures 1, 3, 4, 6 and 7 of the improvement patent '234 [R. Vol. III, p. 553]. Defendants' infringing safety apparatus are depicted in large drawings of Exhibits 81, 82, 83, 84, 85 and 86 [R. Vol. III, pp. 581-585, 588]. Colored reproductions of Exhibits 70, 72, 75, 76, 81, 82, 84 and 85 as they actually appear in the record are reproduced in Appendices C and D for convenience.

The aforementioned exhibits are color coded so that the various common elements of the devices can be easily identified. For example, the supporting housing for mounting on a seat is colored yellow, the reels are colored green, the flexible connectors adapted to be coupled to the seat occupant are colored blue, the rotatably mounted inertia members are colored red, the resilient means for rotating the reel to wind the flexible connector thereon are colored purple, the means for coupling the inertia member with the reel are colored brown and the locking means are colored orange [See Mr. Glauser's testimony, R. Vol. III, pp. 534-599].

Exhibits 102 and 109 are large charts showing claims 7 and 9 of the basic patent '233. Exhibits 110 and 111 are large charts showing claims 1 and 5 of the improvement patent '234. Red capital letters are positioned to the left of each element in Exhibits 102 and 109 and blue lower case letters are positioned to the left of each element in Exhibits 110 and 111.

Mr. Glauser then testified in detail where each of the elements of the claims in suit are found in the defendants' devices shown in Exhibits 84 and 85.

First, with respect to the basic patent '233, claim 7 [Ex. 102] is representative of the two claims involved. Mr. Glauser pointed out where each element of this claim is found in defendants' devices. This was done using the large claim chart of Exhibit 102 and the large drawings of Exhibits 84 and 85 (defendants' devices) and placing the red capital letters for each element in Exhibit 102 on Exhibits 84 and 85 adjacent the number for the corresponding structure [R. Vol. III, pp. 691-697]. *Second*, Mr. Glauser then testified with respect to Exhibit 109, claim 9 of the basic patent '233 stating he reviewed the claim in a similar manner and found each element in Exhibits 84 and 85 [R. Vol. III, p. 698]. The significant difference between claims 7 and 9 is that claim 9 calls for "resilient reel means" instead of the separate elements of a "reel" and "resilient means coupled to the reel" as recited in claim 7 [R. Vol. III, pp. 699-700].

Third, with respect to the improvement patent '234, claim 1 [Ex. 110] is representative of the two claims in suit and Mr. Glauser pointed out where each element is found in defendants' devices. This was done, similar for the '233 patent claims, using the large claim chart of Exhibit 110 and the large drawings of Exhibits 84 and 85 and by placing the blue lower case letters for each element adjacent the number for the corresponding structure on Exhibits 84 and 85 [R. Vol. III, pp. 707-713]. *Fourth*, Mr. Glauser testified with respect to Exhibit 111, claim 5 of the improvement patent '234, stating he reviewed the claim and found each element in defendants' devices depicted in Exhibits 84 and 85 in a similar manner to claim 1 [R. Vol. III, pp. 713-714]. Appendix G, pages 1, 2, 3 and 4 are claim charts summarizing where each element of claims 1, 5

of patent '233 and 7 and 9 of patent '234 are found in Exhibits 84 and 85 in accordance with Mr. Glauser's testimony.

The charts of Appendix G, pages 1, 2, 3 and 4 were presented to the Trial Court in Plaintiff's Memorandum After Trial [R. Vol. II, p. 592].

Thus, defendants' devices employ the very same structure and the very same functions as set forth in the claims in suit of both the basic patent '233 and the improvement patent '234.

In determining whether an accused device infringes a patent, resort is had in the first instance to the words of individual claims of the patent. If the accused device falls clearly within the claim, infringement is established. *Stearns v. Tinker & Razor*, 252 F. 2d 589, 596 (9th Cir., 1957).

Based on this evidence, the District Court found that defendants employ the essential features of plaintiff's inventions and claims 7 and 9 of plaintiff's patent '233 and claims 1 and 5 of plaintiff's patent '234 are infringed by defendants' Models 65A, 94, 95 and 102 safety reels.

Despite the detailed testimony of Mr. Glauser, and the description set forth in defendants' own patent, defendants state in their opening brief that:

"Plaintiff has no evidence or testimony to support the Trial Court's finding of infringement."
(p. 49).

The shotgun approach of defendants' arguments relative to infringement and the weakness of defendants' many defenses is brought into focus by such statements when to the contrary the record contains the detailed testimony of Mr. Glauser as to infringement.

Defendants assert that the expert testimony of Mr. Glauser should be given little weight because Mr.

Glauser is not a patent lawyer. This fails to take into consideration the fact that Mr. Glauser is an engineer with many years of experience in the manufacture, use and sale of the very safety apparatus in suit. The law is clear that patents and their claims are directed to those skilled in the particular art and that they are qualified to read and interpret patents and claims. *S. D. Warren Co. v. Nashua Gummed & Coated Paper Co.*, 205 F. 2d 602, 606 (1st Cir. 1953).

Defendants basically agree in effect with the plaintiff that the claims in suit read on the defendants' devices except as to the inertia element. In this regard defendants assert in their brief at page 48 that their expert, Mr. Gabriel found no infringement because there is no "separate inertia member" in defendants' devices. The term "separate inertia member" is a phrase used by defendants, whereas the claims merely call for an "inertia member". Defendants rely on the testimony of Mr. Gabriel at page 1518 of the transcript as to Exhibits U to X in support of their assertion and say there is no evidence to refute these exhibits and testimony.

Contrary to defendants' assertion on the very page of the transcript on which defendants rely, page 1518, Mr. Gabriel focuses on the fact that his testimony and Exhibits U to X are based on his erroneous theory as to file wrapper estoppel, wherein he asserts an inertia member separate from the locking means is required and on Mr. Swedlow's erroneous analysis which he used to assert there is no effective inertia member at all in defendants' devices [See also R. Vol. III, p. 1510, 1515].

Defendants' contentions in this regard are without merit because Mr. Glauser testified that the pawl in defendants' device is actually the inertia member [R. Vol. III, p. 688], because Mr. Ay and Dr. Sjogren, completely refute Mr. Swedlow's erroneous contentions and

his erroneous analysis and because Mr. Gabriel's theory as to file wrapper estoppel is contrary to the law on this subject.

Defendants' other arguments as to non-infringement require a resort to reading of elements in one claim into another and a resort to the non-analogous trolley catcher art. These matters are disposed of in the following sections.

**B. Mere Change in Structural Details by Defendants
Does Not Avoid Infringement.**

Defendants have asserted that their devices employ a different construction and mode of operation than that of the patented devices. In this regard, defendants try, to rely on features of plaintiff's devices such as the static balancing created by coaxial mounting of the inertia member on the reel, the manual lock and unlock features, the stay lock feature, specific linkage elements for the stay lock feature, and the translation of the drum and inertia member, the latter appearing in the '233 device only. These other features are available in plaintiff's basic patent '233 and in the improvement patent '234 in various combinations.

However, these features are not relevant to the claims in suit. Mr. Glauser recognized this fact and testified that these features are not defined in claims 7 and 9 of patent '233 nor in claims 1 and 5 of patent '234 [R. Vol. III, pp. 946, 948]. In fact, *these features are covered in other claims of the two patents in suit* as follows: the static balancing or coaxial mounting — claim 1 (not 7 and 9) of patent '233 and claim 7 (not 1 or 5) of patent '234; the manual lock and unlock and stay lock feature — claims 6 and 12 of patent '233; the specific linkage elements — claim 2 of patent '234; and the translation feature — claims 4, 10, 11 and 13 of patent '233.

Defendants are not charged with infringement of these other features, but rather the basic features defined in the four claims in suit. Significant in this regard is Mr. Glauser's statement at page 724 of the transcript as to the brown linkage elements shown in Exhibits 76, 77 and 78, he stated:

"They are essential in the way it is laid out here for the detailed spec. it was built to. If you didn't have to keep the dog engaged, didn't want the manual control and this kind of thing, then we certainly could eliminate a lot of linkage and have it lock directly. We have done that on later models."

Reading of elements of claims which are not in suit into other claims which are in suit is uniformly rejected in the Ninth Circuit as improper. For example, in the case of *Stearns v. Tinker & Rasor*, 252 F. 2d 589, 596 (9th Cir., 1957), the court stated:

"Here claim 1 did not call for wheels or rollers while other claims did. Other claims should not be read into claim 1. [cases cited.]"

Defendants represented to the patent office that their device has the same features and mode of operation as defined in the claims in suit [see Ex. 6 and Appendix J] and tests confirm this [high speed movie, Ex. 116; R. Vol. III, p. 1707-1708]. It is clear that defendants' devices perform substantially the same function in substantially the same way and by substantially the same means as plaintiff's patented devices. This constitutes infringement.

A patentee is required to show a preferred embodiment of the invention, not every possible embodiment or modification that is to be covered by the patent. The broad aspects of the Doctrine of Equivalents are discussed in *Graver Tank & Manufacturing Company*,

Inc. v. Linde Air Products Company (1950), 339 U.S. 605, 607, 608 wherein Justice Jackson stated:

“The courts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. . . .

“The theory on which it is founded is that, if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same (it constitutes infringement) even though they differ in name, form or shape.”

Defendants assert that out of twenty-seven claims, “plaintiff could only stretch four claims” to even arguably allege infringement. Directly to the contrary Mr. Glauser testified word for word where each element of the four claims in suit are contained in defendants’ devices. The Patent Laws only require plaintiff to put one claim in each patent. 35 U.S.C. 112. The fact that applicant added claims over the basic claims in suit directed to these other features which defendants fail to include in their devices is no excuse for defendants’ direct infringement of the claims in suit. *Stearns v. Tinker & Rasor*, 252 F. 2d 589, 596 (9th Cir., 1957):

“. . . one may not avoid infringement by making a device which differs in form, or is more or less efficient than the patented device, where he appropriates the principles and mode of operation of the patented device and obtains its results by the same or equivalent mechanical means.”

Johns-Manville Corp. v. National Tank Seal Co.,
49 F. 2d 142, 146 (9th Cir., 1931), *cert. den.*,
284 U.S. 654, 76 L. Ed. 555 (1931).

Defendants assert that Mr. Glauser “was forced to resort to reversing parts on defendants’ device in or-

der to find a *prima facie* case on infringement." Directly to the contrary Mr. Glauser read the claims directly on defendants' devices, as discussed above.

Defendants, in effect, argue they do not infringe because they have reversed parts in their devices from the embodiment disclosed in the patents in suit. For example, the locking pawl is on the casing in the '233 and '234 devices, but on the reel in the defendants' devices, the locking ring is on the inertia member in the '234 device but on the casing around the periphery of the reel and inertia member (or pawl) in the defendants' devices. There is merely a reversal of parts in the defendants' devices from the example of the patented devices shown in the patents in suit [R. Vol. III. p. 722]. Reversal of parts does not avoid infringement. *Ornard Cannery v. Bradley*, 194 F. 2d 655, 658 (9th Cir., 1952).

Mr. Glauser stated with reference to engineering practices:

"In making our layouts or in the design of a device this is common practice, to . . . shift parts back and forth; to try the reverse of what you are doing to see if you can't get a simpler arrangement of parts." [R. Vol. III, p. 723].

Significant in this regard is the fact that Messrs. Wrighton and Cushman (the inventors of the improvement patent '234) had structure very similar to defendants' structure in mind before the '234 patent was filed. Mr. Cushman built an early, incomplete experimental model of a device incorporating the inertia locking principle of the '234 patent while he and Wrighton were jointly developing the '234 device. This model, Exhibit 64, has an *inertia member (or pawl) located on the reel* as does defendants' devices and has a *locking ring around the periphery of the reel and the inertia member (or pawl)* as does defendants' devices [R. Vol. III, pp. 734, 739]. Thus, the inventors of the '234 de-

vice did just what Mr. Glauser said, they reversed parts in going to the final design of the '234 device.

The significance of the Cushman model and its close similarity to the defendants' devices is brought into clear focus by the defendants' attempt to detract from this by arguing that the model makes Mr. Cushman the sole inventor. This argument is without merit as will be discussed hereafter.

Defendants' counsel asked Mr. Glauser to tell the Court from the witness stand how he would go about reversing parts in Exhibit 79 to come up with the defendants' device. Obviously, as Mr. Glauser stated, it would require designing another reel. This was done by many in this field [See Ex. 114, 14 man-sensitive patents and Appx. E]. Because Mr. Glauser did not stand right up in Court and show defendants' counsel how he would go about designing defendants' reel, defendants suddenly grasp this as some kind of admission regarding infringement (App. Op. Br. p. 49). There is no merit to this argument, particularly when the early experimental model of Cushman, Exhibit 64, shows how the reversal can be done.

Moreover, the patent drawings and specifications of the plaintiff's patents clearly show that the patentee contemplated alternatives to the structure shown in the patents in suit. For example, plaintiff's basic patent '233, column 7, lines 23 through 32, states:

“ . . . many changes could be made in the above construction of the safety device and many apparently widely different embodiments of this invention could be made without departing from the scope thereof . . . ”

Similar alternative arrangements were contemplated by the patentee in plaintiff's improvement patent '234. For example, see column 6, lines 7 through 13 and lines 43 through 54.

Plaintiff is a pioneer taking an entirely new course with its man-sensitive apparatus from the previously known vehicle-sensitive devices. The recent case of *The Plastic Contact Lens Co. v. Butterfield*, 151 U.S.P.Q. 83 (9th Cir., 1966) (Federal Reporter citation not yet available) gave particular significance to “pioneer” inventions stating:

“The characterization bears significance, for our court wrote, long ago,

‘If pioneers, they [a patent’s owners] would be entitled to a broad and liberal construction, if, mere improvers, the claim would only be entitled to a narrower interpretation.’ [case cited]”

C. Defendants’ Devices Function in the Same Manner as the Patented Inventions.

The claims in suit, in various ways, define an inertia member operable by inertia or acceleration exceeding a *predetermined acceleration*, due to forces tending to dislodge a seat occupant to cause the locking means to lock the flexible connector and retain the seat occupant in his seat.

Mr. Glauser testified as to this same mode of operation when he defined predetermined acceleration for the ’233 and ’234 patent devices and for the defendants’ devices as follows:

“Predetermined acceleration to me means the device must provide freedom of movement for the man in the cockpit . . . he must have freedom to reach for controls as fast as he can move; therefore you do not want this kind of device inadvertently locking at the time that he is reaching for some control or function of the airplane; so the predetermined acceleration would be how fast he can move, and below that level you do not want to lock him in the seat inadvertently. On the other hand, above that level you would like to have him

locked, because that means that something is propelling him or accelerating him or trying to dislodge him from the seat beyond his own means . . . to restrain himself." [R. Vol. III, pp. 741-742].

Mr. Glauser more specifically defined the predetermined acceleration of defendants' devices to be as defined by the black curve on Ex. 87 [R. Vol. III, p. 743].

Defendants came to trial and for the first time insisted their devices have a different mode of operation because they are solely responsive to velocity or centrifugal forces to lock up and not to acceleration as are the patented devices. The importance of the acceleration-responsive mode of operation was emphasized by Mr. Glauser who testified that a device responsive solely to velocity or centrifugal force would not be saleable because that would mean a man must be moving relative to his seat for lock up to occur "and that is exactly what you don't want going on" [R. Vol. III, pp. 744-745].

That defendants' devices are acceleration-responsive is without doubt in view of the evidence presented at trial. Five of plaintiff's witnesses testified as to the mode of operation of the defendants' devices and each agreed as to the *acceleration-responsiveness* thereof. These witnesses are: *First*, Mr. McAllister, President of plaintiff, and an M.I.T. graduate with a Bachelor of Science degree [R. Vol. III, p. 165]; *second*, Mr. Luttrell, Design Engineer for the plaintiff, who made a preliminary analysis of the operation of the defendants' devices [R. Vol. III, pp. 485-486]; *third*, Mr. Glauser, Director of Engineering for the plaintiff, with many years of experience in this field and licensed as a professional engineer in the State of California, made a detailed analysis of defendants' devices [Ex. 90] and testified that during a typical crash, the defendants' devices would have locked up 79½% due to acceleration

[R. Vol. III, p. 635]; *fourth*, Mr. Ay, a Designer for plaintiff, [R. Vol. III, p. 1004]; *fifth*, Dr. Norman Sjogren, a registered professional engineer in the State of California, having a Ph.D. from Massachusetts Institute of Technology, witnessed tests of the defendants' devices, reviewed the Glauser analysis, and testified that acceleration is "absolutely" a major force in causing the defendants' devices to be locked up [R. Vol. III, pp. 1707-1708; high speed movie; Ex. 116].

In contrast to plaintiff's evidence, not one witness who is intimately familiar with the detailed structure and operation of the defendants' devices in suit, was brought to testify on their behalf. Instead, defendants placed two witnesses on the stand, whom defendants' attorneys had recently hired. One of defendants' witnesses, Mr. Gabriel of Los Angeles, defendants' patent expert had not made any analysis other than what he called his own force diagrams (which were not shown to the court) nor had he seen any analysis of the defendants' devices other than the analysis and tests presented at trial [R. Vol. III, p. 1542]. The other witness, Mr. Swedlow of Pasadena, is an engineering student with virtually no practical experience and is not a registered professional engineer in California.

Mr. Swedlow based his testimony as to a different mode of operation on a theoretical analysis he prepared and on an "impact phenomena" he said exists. However, the analysis was put together in such a hurried manner that it is based on *incorrect constants* [R. Vol. III, p. 1564] *some of which were critical and Mr. Swedlow only approximated* [R. Vol. III, pp. 1458, 1566, 1572]; *incorrect assumptions in deriving equations* [R. Vol. III, pp. 1578, 1604 and 1704]; and *misconceptions about how the defendants' devices actually operate* [R. Vol. III, p. 1704]. The result of the analysis is wrong [R. Vol. III, p. 1704].

As to the alleged “impact phenomena” Mr. Swedlow could not give the conditions under which he in his own mind felt the “impact phenomena” occurred. He indicated it depends on the materials and geometry involved [R. Vol. III, pp. 1470-1471] but admitted he had not studied the materials of defendants’ devices to see whether or not impact occurs [R. Vol. III, p. 1471].

Dr. Sjogren completely refuted Mr. Swedlow’s impact theory and testified that “there is no chance for impact.” [R. Vol. III, p. 1704].

In summary, the assertions of Messrs. Swedlow and Gabriel about the mode of operation of the defendants’ devices are absolutely incorrect, and the mode of operation of defendants’ devices and plaintiff’s patented devices are the same, and not different [R. Vol. III, pp. 1615, 1616].

Furthermore, in defendants’ patent [Ex. 66], which admittedly describes defendants’ devices, and in correspondence with the Patent Office as shown in the file history of defendants’ patent [Ex. 100], defendants asserted exactly what principles of operation and structure constitutes the essential features of their devices. These principles, structures, and operation are the very same as those taught by plaintiff’s patents [See Appendix J, for a discussion relative to the statements in the file history of defendants’ patent, see R. Vol. III, pp. 657-659].

It is a well-settled rule of law that statements made in the defendants’ patent and in its file history are admissible and are striking evidence that defendants’ devices infringe plaintiff’s patents. *Stedman Manufacturing Co. v. Redman*, 257 F. 2d 867 (4th Cir., 1958) *cert. denied*, 1958, 358 U.S. 928.

Similar statements regarding the acceleration mode of operation are found in the product specifications for the defendants’ devices, specification papers for installing the defendants’ devices on seats, and published and

copyrighted technical journals of the defendants [Exs. 48-53, R. Vol. III, pp. 640-645]. These statements were made and published to customers, purchasing agents, buyers, etc., at a time when defendants did not know that the statements would effect their interests [Exs. 48-53, See Ex. 51 in particular; Ex. 124—Answers to Interrogatories Nos. 25 and 26].

As noted in the case of *Cox v. Esso Shipping Company*, 247 F. 2d 629, 632 (5th Cir., 1957):

“It is that simple. . . . All that is needed is an authoritative statement by the adversary inconsistent with the contemporary litigation position.”

Defendants have not produced any credible proof of its present assertions and these present assertions, which are based on completely non-existent and erroneous facts, should be disregarded.

The District Court found that defendants' Models 65A, 94, 95 and 102 safety apparatus are acceleration responsive and accomplish substantially the same result in substantially the same way as the devices of the patents in suit [See Nos. 33 and 34, Findings of Fact].

Although more time was devoted to the operation of the defendants' devices than any other single subject [Opin. R. Vol. III, p. 900], defendants do not even mention this contention in their Opening Brief, except to state it was error for the District Court to find that defendants' devices are acceleration responsive within the meaning of the patent in suit (Nos. 12, 13, Appellants' Concise Statement of Points on Appeal Under Rule 17(b) which were incorporated by reference on page 11 of Defendants' Opening Brief). Instead, defendants are now largely resigned to arguments that their devices have a different mode of operation because in their devices there is no translation of the reel drum assembly, there is no balanced construction and there is no manual unlocking feature or stay lock feature.

These features are the subjects of various claims of the two patents, but they are not required by the claims in suit and cannot be read into the claims in suit.

D. Estoppel Has No Application to the Facts in This Case.

Plaintiff asserts that the history of development of the patented devices reveals that an inertia member which is *separate from the reel is required*.

Defendants assert that the history estops plaintiff from claiming a device that does not have *an inertia member separate from the locking means*.

The evidence in support of plaintiff's assertion is the early history of development of the '233 device as brought out by plaintiff on direct examination. Mr. Pfankuch, one of the co-inventors of the basic '233 patent, prepared a disclosure [Ex. 63] and built a model in accordance with this disclosure [R. Vol. III, pp. 273-274]. This device did not have an inertia member separate from the drum or reel but utilized the inertia of the drum or reel itself to cause locking [R. Vol. III, p. 274]. Mr. Pfankuch stated with reference to this device:

"It was due to the proportion of the parts, and so forth; this device was not reliable and it wouldn't reliably lock at some predetermined point." [R. Vol. III, p. 275].

In order to overcome this problem, Messrs. Pfankuch and Wrighton added an inertia member which is separate from the drum or reel [R. Vol. III, p. 275]. With this inertia member, the device operated satisfactorily and met commercial requirements of the plaintiff [R. Vol. III, p. 276]. The inertia member which is separate from the reel is disclosed and claimed in the basic patent '233.

The improvement patent '234 also discloses an inertia member separate from the reel and it is an important

part of this device. It is imperative that there be an *inertia member* separate from the reel in order to get the *relative rotation between such inertia member and reel* to cause locking as defined in claims 1 and 5 of the patent '234.

The patented devices have an inertia member separate from the reel and this is just what defendants' devices have, both in structure and in function. For example, defendants' devices have an inertia member or pawl 38 (or 40) (red) and it is separate from the reel 2 (green) and it is coupled to the reel by means of the spring 46 (brown) all as shown in plaintiff's Exhibit 85 [See App'x. D]. Defendants' pawls *have inertia and there is relative pivoting or rotation between the inertia pawls and the reel*. The pivoting and rotating action of defendants' pawls is described in its patent [Ex. 66, Col. 4, lines 18-24, See App'x. J].

The evidence in support of defendants' assertion that the inertia member must be separate from the locking means is non-existent except as to what Mr. Gabriel tried to make out of the evidence. Defendants rely on the testimony of Mr. Wrighton and Mr. Pfankuch and others of plaintiff's witnesses. However, the testimony of all of these witnesses is consistent with the history of development where an inertia member separate from the reel is needed, rather than being separate from the locking means. In fact, the question and answer of Mr. Wrighton at R. Vol. III, p. 358 relied on by defendants in their opening brief is solely directed to the inertia member being separate from the reel or drum.

Defendants curiously do not even mention the fact that in the '234 patent the inertia member 32 [see red member of Ex. 76, Appx. C] has teeth which are physically part of the locking means along with the pawl 57 (orange member) [R. Vol. III, p. 476]. In fact, this is one of the improvements of the '234 device over the

'233 device [R. Vol. III, pp. 720-721]. Thus, the '234 patent discloses an inertia member 32 which is separate from the reel but which constitutes part of the locking mechanism. Similarly, defendants' devices have an inertia member 38 (or 40) which is separate from the reel 2 but which constitutes part of the locking mechanism which includes the locking ring 16 [See Ex. 85, App'x. D].

Defendants next turn to an assertion of file wrapper estoppel.

Plaintiff asserts that it has followed the statutory procedures in protecting its patent rights and that its claims are entitled to conventional interpretation and read directly on defendants' devices without the need to broaden or alter them in any manner.

Defendants assert that the doctrine of file wrapper estoppel prevents plaintiff from now attempting to broaden its claims and claim defendants' device is an infringement.

The evidence and law in support of plaintiff's assertions are that the claims read literally upon defendants' devices as testified to by Mr. Glauser, (See claim charts in App'x. G) and there is absolutely no need to broaden these claims. The file histories of the two patents, Exhibits 131 and 132, show that the claims were carefully considered by the Patent Office. The claims in suit in the '233 patent were first presented to the Patent Office on March 2, 1965. They were then claims 23 and 25 which were renumbered to be claims 7 and 9 at the time the patent issued [See p. 54-55, Ex. 131]. These claims were amended slightly by a paper filed in the Patent Office on May 10, 1956 [See p. 73, Ex. 134]. Thus, these claims were written and presented to the Patent Office in 1956, long before defendants' devices became available in 1958 and could not have been worded in an abnormal manner with defendants' devices in mind. They read directly upon the de-

fendants' devices without requiring a strained interpretation of any kind. These very claims were the subject of an appeal to the Board of Appeals of the Patent Office, and the Board held them allowable and patentable without requiring further limitations or changes in the wording [Ex. 131, See Opinion of Board of Appeals, starting p. 88].

Nowhere in the entire file history is there any statement that an inertia member separate from the locking means is of importance. Neither is there any statement that the locking means is solely the pawl. What is more, it was not necessary for the applicants, at any place, to distinguish over a prior art reference on the ground that the patents in suit claim a device with an inertia member separate from the locking means or on the ground that the locking means is solely the pawl. In fact, the file history emphasizes the only important thing and that is that *the inertia member be separate from the inertia properties of the reel*. At page 36 of the file of the basic patent '233, the applicants state:

"One of the most important advances made by applicants was the utilization of a separate, rotatably mounted inertia member coupled to the cable reel as opposed to the utilization of the inertia properties of the reel itself, as used in the Sharpe device. . . . Applicants made many attempts at this inertia drum type of safety reel without meeting the necessary rigid requirements for such a safety device and was not until applicants had devised the separate inertia member coupled to the cable reel did the successful safety device emerge. There is nowhere shown in the cited reference a separate, rotatably mounted inertia member which is coupled to the cable reel, the anti-rotational effect of which serves to instigate the locking of the cable reel during excessive accelerations." (Emphasis added.) [Ex. 131, p. 36].

This quotation clearly emphasizes what applicants use to distinguish over the Sharpe prior art reference, namely, an inertia member which is separate from the reel. Sharpe does not disclose an inertia member in combination with the locking means. Therefore, applicants did not, and it was completely unnecessary to, distinguish over such a device on the grounds that the inertia member is separate from the locking means.

What was said in the case of *Hunt Tool Company v. Lawrence*, 242 F. 2d 347, 354 (5th Cir., 1957), in this regard is particularly appropriate:

“. . . the reference to the several patents cited do not make such a distinction a plausible ground for the rejection . . . appellants are protected by file wrapper estoppel *only if they can show that their alleged infringement is in an area to which the prior art could possibly have been thought to extend so as to make it impossible to make valid claims there*, for there is no reason to presume that applicant made a disclaimer broader than necessary to yield to the actual challenge to his claim. [case cited].”

(See also *Nasco, Inc. v. Vision Wrap Inc.*, 352 F. 2d 905 (7th Cir. 1965).)

Defendants' devices do not fall into any area which may have been excluded by the Sharpe prior art patent because their devices operate on the same principle as the patents in suit and not on the principles of the Sharpe reference.

The recent U. S. Supreme Court case of *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 15 L. Ed. 545, 565 (1966) defined the situation where estoppel applies in a similar manner.

The evidence and law asserted by defendants is primarily the testimony of Mr. Gabriel, defendants' patent expert, as to the file histories of the two patents and as to his version of what the law is or should be.

Defendants have asserted that plaintiff refused to cross-examine Mr. Gabriel and that plaintiff refused to present the testimony of a patent lawyer in support of plaintiff's position. Plaintiff is under no obligation to present testimony or to cross-examine witnesses concerning matters of law. It is submitted that nothing is to be gained by testimony as to what a witness thinks the law is or how he thinks it should be applied or what the words are in the file history of a patent. It is elementary that estoppel is a question of law for the Court. Likewise, the construction of patents and their file histories are questions of law for the Courts.

Mr. Gabriel construed the file history of plaintiff's '233 patent to require that the claims be interpreted to require as a court-imposed limitation that the inertia member be separate from *both* the reel and the locking means, even though the claims in suit do not state this. This contention is without merit in view of the file history.

Mr. Gabriel went through quite an analysis to reach the conclusion that file wrapper estoppel applied to the '233 patent because of the prior patent to Sharpe. Then he boldly stated that the same file wrapper estoppel carried over into the '234 patent, even though the Sharpe patent was never cited against the latter patent [R. Vol. III, p. 1189]. Absolutely no legal authority is cited by defendants to support Mr. Gabriel's version of the law.

The legal authority is directly contra to defendants' contention. In the case of *Bechik v. Handy Mattress Accessories Corporation*, 45 F. Supp. 73 (N.Y. 1942),

the Court considered a first patent which claimed a rigid bar and a second patent which claimed a flexible bar, and held that the second patent is entitled to cover a flexible bar even though it could not be covered by the first patent. With reference to the second patent, the Court stated:

“The balance of the defendant’s criticism of the patent in suit [the second patent], based upon the solicitation thereof and the file wrapper history, has been considered and found not to be persuasive.” 45 F. Supp. 75.

An additional case which supports plaintiff’s position and which negates Mr. Gabriel’s version of the law is *Dodge Needle Co. v. Jones*, 153 F. 186, 190 (3rd Cir., 1907). In the *Dodge* case the patentee filed a first patent application in which he asserted claims covering headless pins and he disclaimed headed pins. The patentee later filed a second application in which he claimed both headed and headless pins. The Court held that the patentee was not estopped by the proceedings concerning the first patent application because the latter stands as accepted at the close of proceedings, regardless of what passed previously.

Thus, Mr. Gabriel’s testimony as to what the law is concerning estoppel turns out to be *contra* to what the courts say it is, both with reference to when estoppel comes into play and whether or not it carries over from a first to a second patent application.

Moreover, even if the law of file wrapper estoppel did apply to the present case, the facts necessary for such estoppel do not exist as to the ’233 patent as discussed above.

III.

The Patented Inventions Meet the Requirements of Novelty, Usefulness and Non-Obviousness Set Out in the United States Supreme Court Cases of February 21, 1966, and Are Valid.

A. The Patented Inventions Are Novel.

Four United States Supreme Court cases were decided on February 21, 1966, in accordance with the arguments and evidence submitted by plaintiff, and these cases support a finding of validity of plaintiff's patents. All of these cases are based on the same rules of law as to validity. Plaintiff relies on the following two of those cases:

Graham v. John Deere Company of Kansas City,
383 U.S. 1, 15 L. Ed. 2d 545 (Feb. 21, 1966);
United States v. Adams, 383 U.S. 39, 15 L. Ed.
2d 572 (Feb. 21, 1966).

The *Adams* case involved facts very similar to this case and the Supreme Court held the patent in suit valid and infringed. In the *Adams* case the Court stated:

“As we have seen in *Graham v. John Deere*, 383 U. S. 1, 15 L. Ed. 2d 545, novelty and non-obviousness — as well as utility — are separate tests of patentability and all must be satisfied in a valid patent.”

The evidence in this case clearly shows that the patented inventions are novel and were not obvious to those skilled in the art at the time the inventions were made.

Plaintiff's inventions sense and respond to acceleration of the person to be protected and lock him into his seat when abnormal acceleration of the person's body is sensed. The commercial prior art devices sense and respond to movement of the vehicle itself.

There is no prior art which shows safety apparatus which responds to acceleration of the person to be protected. This man-sensitive feature is not shown or suggested in the prior art.

A large part of defendants' opening brief is devoted to attacking plaintiff's use of the phrase "man-sensitive safety apparatus" to describe its inventions and to distinguish the inventions over the prior art. Defendants even assert that it is a concocted and meaningless phrase and that it befuddled the Trial Court. Defendants assert that plaintiff's patented invention is merely a cable locking mechanism. However, the record shows otherwise.

The phrase "man-sensitive" is merely a convenient way to describe plaintiff's devices in a way that distinguishes them from the prior art vehicle-sensitive apparatus. It is submitted that this descriptive phrase is consistent with the way plaintiff, American Seating Company, Douglas Aircraft Company and even defendants have described these devices in the past.

All of the witnesses who are skilled in the relevant art (as opposed to Mr. Gabriel and Mr. Swedlow, who had never designed or used or tested a man-sensitive safety apparatus) distinguished the inventions in suit over the prior art vehicle-sensitive safety apparatus by its man-sensitive characteristics.

For example, Mr. McAllister, plaintiff's president, testified that "man-sensitive" is an engineering phrase to make clear the distinguishing feature and is similar to the engineering phrase "temperature-sensitive" [R. Vol. III, pp. 100-115]; Mr. Henrikson testified that American Seating Company called the devices in suit "pilot-sensitive" to distinguish them from their prior vehicle-sensitive devices [R. Vol. III, pp. 206, 209]; Mr. Pfankuch, co-inventor of the '233 patent, told the Air Force as early as 1950 or 1951 that "his idea was to

make a device responsive to movement of man relative to his seat" [R. Vol. III, p. 290]; and Mr. Rischard, formerly of Douglas Aircraft, testified that the most desirable way to decide when to lock up is by sensing motion of man [R. Vol. III, p. 253].

The devices are described in the first and tenth paragraphs of the '233 patent as follows:

"This invention relates, generally, to novel safety apparatus for use by pilots, operators, and other crew members, such as bombardiers, navigators, gunners, etc. of rapidly moving vehicles such as aircraft and automobiles and, more particularly, to novel inertia-operated apparatus for use with body harnesses which apparatus automatically functions to safely retain the pilots in their seats during crashes and the like.

"Another object of this invention is to provide a novel safety device which will automatically operate to lock the associated shoulder harness directly in response to movement of the pilot's body regardless of the direction of movement thereof."

The devices are described in the first paragraph of the '234 patent as follows:

"This invention relates, generally, to novel safety apparatus for use in retaining persons such as pilots and passengers of rapidly moving vehicles such as aircraft and automobiles in their seats during sudden and violent motion of the person with respect to the craft due to excessive changes in velocity of such craft and, more particularly, to novel apparatus of the inertia-operated class."

While prosecuting the basic patent '233 before the Patent Office, applicants argued in a paper dated December 1953:

". . . The inertia forces on the passenger's body alone are what determines whether or not the de-

vice will lock. The vehicle can accelerate and decelerate at any rate possible, but, so long as the passenger's body does not accelerate or decelerate *with respect to the vehicle*, the device will not lock up. This is indeed a great step forward in the art of inertia safety devices. It protects pilots and passengers when they need to be protected, and leaves them free to move and act when they are not in danger." [Ex. 131, pp. 22-23].

While prosecuting the improvement patent '234 before the Patent Office the applicants argued in a paper dated September 1956:

"... Applicants' claims are all directed to a safety device for mounting in a vehicle to restrain the movement of a body within the vehicle when the body is subjected to relatively high acceleration movement relative to the vehicle, while the Rudledge invention is directed to a fishing reel which is completely foreign to applicants' inertia operated safety device in object, construction, and manner of operation."

Defendants themselves made similar representations to customers, purchasing agents, buyers, etc. regarding their own devices in suit in product specifications, specification papers for installing their devices on seats and in published and copyrighted technical journals [Exs. 48-53, see in particular Ex. 51, pp. 7-8 previously quoted].

Defendants assert that the term "man-sensitive" is improper because the devices are tested mechanically and because one of plaintiff's patents stated that the devices may be used in connection with freight handling or the like.

This argument fails to take into consideration the fact that the devices are constructed for protecting people from injury or death, and that is what defendants'

devices are employed for. There is no evidence that the devices have been employed for other purposes. In fact, Mr. McAllister testified he never saw the patented devices used for freight handling and never considered them to apply other than for protecting persons in their seat [R. Vol. III, p. 197]. Defendants did not present any evidence of any tests to demonstrate that the devices would be satisfactory for any other purposes.

Moreover, the claims in suit are specifically directed to devices which respond to abnormal movement of a seat occupant for protecting him in his seat.

On page 10 of their opening brief, defendants assert that plaintiff relies upon the term "man-sensitive", and not upon the term "acceleration-sensitive", in this action, whereas before the Patent Office plaintiff relied upon the term "acceleration-sensitive."

Nothing could be farther from the truth. Defendants made the acceleration-sensitive feature of plaintiff's devices the major issue before the Trial Court because they asserted that their devices lacked this feature both in their brief before trial and in their counsel's opening argument [R. Vol. II, pp. 438-439, R. Vol. III, p. 17].

Approximately two-thirds of the trial was devoted to this issue. The Opinion of the Trial Court had this to say about the issue:

"Defendants further urge that their device responds to velocity, while plaintiff's reel responds solely to acceleration . . .

"The parties have devoted a large part of their testimony and their briefs to the question of what force activates (i.e. locks) each of the devices. . . .

"Careful examination of the testimony and of the exhibits persuades the court that the distinction defendants seek to draw here is not a valid one, particularly in view of the terminology of defendants' patent describing their device as acceleration-operated." [R. Vol. III, p. 900].

Defendants' assertion that plaintiff now relies upon "man-sensitive", and not upon "acceleration-sensitive" is not in accordance with the record. Defendants are attempting to fabricate something that can not exist.

On pages 9 and 10 of their opening brief defendants attempt to show that the proceedings before the Patent Office concerning the '234 patent make the phrase "man-sensitive" improper and assert that plaintiff was required to cancel references to the pilot's body.

This argument fails to take into consideration the fact of the Patent Office requirement related to the definition of parts or elements of the invention in terms of the pilot's body [Ex. 132, p. 46]. The Patent Office did not require that reference to the body be deleted from the preamble of the claim where the purpose is described. For example, Claim 1 of the '234 patent states:

"1. A safety device for mounting in a vehicle to restrain movement of a body within the vehicle when the body is subject to relatively high acceleration movement relative to the vehicle. . . ."

In its most recently reported decision dated October 6, 1966, the Court of Customs and Patent Appeals had this to say about the introductory portions of claims:

"First, we do not agree that the portion of the patent claims which recite 'a composition for setting hair', may be ignored in determining what invention is defined by the patent claims . . . those introductory words give life and meaning to the claims."

In re Walles, Tousignant and Houtman, 151 U.S.P.Q. 185, 190 (Federal citation not yet available).

Thus, the inventions relate to apparatus for sensing the movement of a person with respect to the seat he

occupies. The term “man-sensitive” is proper. Defendants’ objection to the phrase “man-sensitive” is not well founded in fact or in logic.

Certainly the use of the term “man-sensitive” did not befuddle the Trial Court, as defendants assert. The Opinion which the Trial Court filed on July 12, 1965 shows a clear grasp of the facts and issues and not befuddlement.

Defendants further assert that the trolley catcher patents to Ham, Burdon and Ricketts anticipate the patented inventions. However, the trolley catchers do not show or suggest devices for holding a man in his seat. The trolley catchers are large heavy devices mounted outside streetcars which serve to catch a pole having a predetermined fixed weight when it is urged unidirectionally upwardly by a spring having fixed characteristics, whereas the patented inventions are small devices mounted on the back of a seat which serve to sense the movement of a person in any direction [see discussion, R. Vol. III, pp. 1731-1736, App’x. E].

The claims in suit distinguish over the trolley catchers in a number of respects. The claims have the following limitations which distinguish them from the trolley catcher devices in the Ham, Burdon and Ricketts patents: safety apparatus for preventing a seat occupant of a vehicle from being thrown off his seat, an inertia lock device adapted to be mounted on the back of a seat, a flexible connector or cable adapted to be coupled to the seat occupant within the vehicle, and means for sensing the acceleration of the flexible connector caused by forces acting on the seat occupant to retain the seat occupant in his seat in the event of an abnormal movement of the occupant with respect to the seat.

These elements and features and functional relationships are not disclosed by the trolley catcher patents and thus, plaintiff’s claims require elements and fea-

tures and functional relationships which are not shown by the prior art.

The *Adams* case involved very similar facts. In the *Adams* case, application for the patent was filed in the name of Adams in 1941. It is directed to a battery comprising two electrodes, one made of magnesium and the other of cuprous chloride, both of which are placed in a container. An object of the patent is to provide a battery which is relatively light in weight with respect to capacity and in which the battery may be manufactured and distributed to the trade in a dry condition and rendered serviceable by merely filling the container with water.

Out of a total of 11 claims only claims 1 and 10 were principally relied on. Both of these claims include magnesium electropositive and fused cuprous chloride electrodes but *neither positively include the water battery fluid*.

The Supreme Court stated:

“The Adams invention was the first practical water-activated, constant potential battery which could be fabricated and stored indefinitely without any fluid in its cells. It was activated within 30 minutes merely by adding water.” 15 L. Ed. at p. 575.

Signal Corps scientists observed the demonstrations and conducted their own further tests but at first did not believe the battery workable. One Government expert “expressed doubts” about it. Later the Signal Corps concluded the battery was feasible and started using it extensively. By 1956 it was noted that the addition of water-activated batteries to the family of power sources had brought about developments which would otherwise have been technically or economically impossible. In 1955 Adams learned of the Government’s action and requested compensation. The re-

quest was denied and Adams brought suit against the Government.

At trial the Government primarily relied upon six references which together, it contended, disclose the magnesium and cuprous chloride electrodes and the water battery fluid. The Government contended that the claimed combination represented either no change or an insignificant change as compared to the prior art battery and would not justify a patent. The Supreme Court found the Government's contention in error because:

" . . . First, the fact that the Adams battery is water-activated sets his device apart from the prior art. . . .

" . . . it is fundamental that claims are to be construed in the light of the specifications and both are to be read with a view to ascertaining the invention. . . . Taken together with the stated object of disclosing a water-activated cell, the lack of reference to any electrolyte in Claims 1 and 10 indicates that water alone could be used. . . . It is evident that respondents' present reliance upon this feature was not the afterthought of an astute patent trial lawyer. . . . The findings approved and adopted by the Court of Claims, also fully support this conclusion." 15 L. Ed. at p. 579.

In this case, we have a novel device for protecting persons in their seat, one that responds to abnormal movement of a man relative to his seat in any direction. The patented inventions are for protecting persons in their seat by their history of development, by their patent specifications and claims, by their file histories, and even by defendants' own admissions in its published and copyrighted literature. The claims in suit are novel.

Defendants rely on Exhibits I through T which allegedly compare the patented devices and the trolley catcher patents and state there was no cross-examination

of their experts, Gabriel and Swedlow, on their testimony as to these exhibits.

Plaintiff did in fact cross-examine defendants' two experts on the prior art trolley catcher patents and found that they had never tested a trolley catcher, had never designed one, had never analyzed the forces which would be involved, did not know the G's or the rate of onset for the G's for a trolley catcher, had never seen a trolley catcher restrain a man in a seat, and had never seen defendants' device used as a trolley catcher [R. Vol. III, pp. 1492-1494, 1553-1558].

In short, plaintiff's cross examination of defendants' witnesses concerning the trolley catchers showed that they knew very little about the matter and were only trying to tell the Trial Court what the law is based on public documents, namely, the Ham, Burdon and Ricketts patents. Their testimony added nothing to these patents which were already of record, *before* their testimony for the Court to review for itself.

Claim charts of Appendix G summarize where the claims in suit are not met by the Ham, Burdon and Ricketts patents.

B. The Patented Devices Were Not Obvious to Persons Skilled in the Pertinent Art Involved at the Time the Inventions Were Made.

Plaintiff asserts that the patented devices were not obvious to those skilled in the pertinent art at the time the inventions were made and satisfies the requirement for inventions laid down in the Supreme Court cases of February 21, 1966.

Defendants assert that the invention is directed to the old combination of a vehicle, a safety device, a cable and an object and this is anticipated by combining the Nordmark patent '693, the Geohegan patent '653 and the trolley catcher patents.

Defendants' assertion fails because the patents to Nordmark and Geohegan do not suggest sensing the acceleration of the man with respect to his seat to actuate the locking mechanism but are vehicle sensitive devices, and the trolley catcher patents are not concerned with protecting persons at all.

Under similar circumstances the Court of Customs and Patent Appeals in *Application of Adams* (C.C.P.A. 1966), 356 F. 2d 998, in considering whether an invention would have been obvious to those skilled in the art in view of the art stated at page 1002:

“ . . . but the fact remains that neither reference contains the slightest suggestion to use what it discloses in combination with what is disclosed in the other.”

Here the Nordmark and Geohegan patents do not suggest the use of what they disclose in combination with what is disclosed in the trolley catcher patents, and vice versa.

Moreover, defendants' assertion that these references can be combined assumes that the devices of the trolley catcher patents would function satisfactorily if employed to sense the movement of a man in his seat and hold him there in the event of abnormal acceleration. Defendants' witnesses testified that the devices of the trolley catcher patents would so function, but they did not back up this with any tests or other proof. Their testimony was based upon their opinion that the trolley catchers would *inherently* perform the required sensing and locking action. To the contrary Mr. Glauser testified it would be “outlandish” to even attempt to use a trolley catcher to protect a person in his seat [R. Vol. III, p. 1732].

In the *Application of Adams* case, *supra*, the court had this to say about such arguments at page 1003:

“ . . . But the art does not suggest the use of foam in heat transfer of any kind and there is not the slightest suggestion that anyone *knew* of the existence of this inherent superiority until Adams disclosed it. After all, Bell’s telephone was ‘inherently’ capable of transmitting speech, DeForest’s triode was ‘inherently’ capable of amplification, and, to come down to date, so was the tiny transistor which is rapidly supplanting it.”

In an opinion dated July 21, 1966 entitled *Application of Spormann and Heinke*, 363 F. 2d 444 the Court of Customs and Patent Appeals stated at page 448:

“ . . . As we pointed out In re Adams, 356 F. 2d 998, 53 CCPA . . . , the inherency of an advantage and its obviousness are entirely different questions. That which may be inherent is not necessarily known. Obviousness cannot be predicated on what is unknown.”

The Court of Customs and Patent Appeals is the court that hears most of the appeals concerning patentability of inventions and, hence, its views are entitled to great weight.

The evidence in support of plaintiff’s assertions are, even assuming for a moment that all of the elements of the man-sensitive safety apparatus could be found here and there in the combination of the Ham, Burdon and Ricketts trolley catcher patents and the Nordmark and Goehagan vehicle-sensitive safety apparatus, to combine the disclosures of the prior patents and redesign the devices to come up with a man-sensitive safety apparatus in accordance with the inventions in suit, would require a person skilled in the art of vehicle-sensitive safety apparatus to ignore (1) that many years of design and development had gone into the design of safety apparatus for sensing vehicle deceleration to cause lock up, (2) that although there was a

need for multidirectional safety devices for protecting a man in his seat, all research and development thereof had been of the vehicle-sensitive type, (3) that a man can move slow or fast as he desires and that if abnormal movement of a man is sensed to cause lock up he might cause lock up to occur before an emergency really exists [see R. Vol. III, p. 278, where Air Force personnel who had previously used vehicle-sensitive devices even tried to trick one of plaintiff's models]. It would require the realization that abnormal movement of the man in any direction could be sensed to cause lock up of the safety apparatus and that movement of the man in any direction below the abnormal amount would not cause the man to be locked up, something never thought of before the invention of Pfankuch and Wrighton.

The Supreme Court concludes that the Adams battery is non-obvious stating:

“ . . . Despite the fact that each of the elements of the Adams battery was well known in the prior art, to combine them together as did Adams required that a person reasonably skilled in the prior art must ignore that (1) batteries which continued to operate on an open circuit and which heated in normal use were not practical; and (2) water-activated batteries were successful only when combined with electrolytes detrimental to the use of magnesium. These long-accepted factors, when taken together, would, we believe, deter any investigation into such a combination as is used by Adams.” 15 L. Ed. at p. 580.

In the present case the primary user of the patented devices was at first skeptical of the principle of operation. Trolley Catchers had been around since the turn of the century (Ham patent '763 was filed in 1901) and the latest patent activity in the record is in 1919 (filing date of Ricketts patent) and yet no one borrowed from:

the out-dated trolley catcher art to improve on the prior vehicle-sensitive safety apparatus even though these trolley catching devices have been in existence for over 65 years. All of the witnesses skilled in the relevant art who testified on this subject testified that they and their companies have not used trolley catchers as a basis of improving on their safety apparatus. These witnesses are Mr. Henrikson of American Seating Company [R. Vol. III, p. 222], Messrs. Pfankuch, Wrighton and Luttrell of plaintiff [R. Vol. III, pp. 289, 351 and 449].

Subsequent to plaintiff's entry into the market in 1954, numerous improvement patents dealing with man-sensitive safety apparatus were filed by plaintiff and other companies and some companies introduced their own versions thereof into the market. For example, between 1956 and 1960 applications for at least eight U.S. patents (now issued) were filed by American Seating Company, defendants, Teleflex Products Limited and Rocket Power, Inc. and between 1955 and 1961 applications were filed by plaintiff for five patents (now issued) [Exs. 66, 114]. All of these are of the man-sensitive type [R. Vol. III, p. 749].

American Seating Company and Hardman Tool and Engineering Company came out on the market with a man-sensitive safety apparatus of their own and took out licenses with plaintiff under the patents in suit in November 1959 and May 1964 [Exs. 17, 18]. Teleflex in England, SARMA in France and Shimadzu in Japan took out licenses from plaintiff under the foreign counterparts of the patents in suit and started using the patented devices and paid royalties therefor [Exs. 19-21]. Subsequent to the filing of the patents in suit, plaintiff itself developed and sold many different models of man-sensitive safety apparatus, including Models 0101, 0106, 0107, 0108, 0103114, 0103144, 0103162, 0103136 [R. Vol. III, p. 26-28; Exs. 6-10].

It is apparent that it was plaintiff's pioneering effort in conceiving and developing the first man-sensitive type of safety apparatus that prompted further development on these devices, not the antiquated trolley catchers which defendants searched out as an after-thought to try and justify their acts. The inventions in suit were just not obvious to those skilled in the art of protecting persons in their seat *at the time the inventions were made*, because they were thinking in terms of vehicle-sensitive safety apparatus and had not considered man-sensitive devices at all.

In the *Adams* case, the Supreme Court continues:

“Nor are these the only factors bearing on the question of obviousness. We have seen that at the time Adams perfected his invention noted experts expressed disbelief in it. Several of the same experts subsequently recognized the significance of the Adams invention, some even patenting improvements on the same system.” 15 L. Ed. at p. 580.

All of these indicia are present under the facts of this case.

Defendants recklessly assert that “the Trial Court did not make any findings which discuss the differences between the prior art and the claims at issue” and the only finding relating to obviousness is a flat statement, with no explanation, making reference to the second sentence of Finding 53.

Contrary to these erroneous assertions, Finding 53 is set out in full in Appendix H with record references supporting the facts therein. Also, the following additional findings should be noted in this regard, Nos. 56, 62, 64, 65, 67-70.

As to defendants' assertion regarding no findings describing the differences over the prior art, Finding 57 completely refutes this contention.

C. The Presumption of Validity and the Factors
Strengthening the Presumption.

Plaintiff asserts that its patents are presumed valid and striking commercial success and other attendant factors strengthening this presumption are not overcome by the defendants.

Defendants assert that plaintiff substitutes commercial success for invention.

In support of plaintiff's assertion, the law says that a patent is presumed valid and defendants carry a heavy burden of proof in asserting invalidity. 35 U.S.C. 282.

Neff Instrument Corporation v. Cohu Electronics, Inc., 298 F. 2d 82, 86 (9th Cir., 1961).

The presumption of validity is strengthened by striking commercial success. Striking commercial success is evidenced, among other things, by the following: a sharp rise in plaintiff's sales [Ex. 24, R. Vol. III, p. 51], as the sales of prior art devices declined sharply [Ex. 62, R. Vol. III, p. 217]; the fact that man-sensitive apparatus achieved world-wide acceptance displacing the prior art devices and now occupies about ninety per cent (90%) of the world market [R. Vol. III, p. 68]; and the fact that plaintiff's man-sensitive devices have been widely used on both military and commercial vehicles [R. Vol. III, pp. 62-63].

Commercial success is a strong indication of substantial advance required to establish patentable invention. *Eibel Process Company v. Minnesota & Ontario Paper Company* (1923), 261 U.S. 45, 67 L. Ed. 523; *Hayes Spray Gun Company v. E. C. Brown Company*, 291 F. 2d 319 (9th Cir., 1961). The Ninth Circuit case of *Monroe Auto Equipment Co. v. Superior Industries, Inc.*, 332 F. 2d 473 (May 22, 1964), relied on by defendants, recognizes this same rule of law.

Defendants insinuate high pressure salesmanship caused plaintiff's commercial success. Directly to the contrary, between 1954 and 1963 plaintiff's sales of man-sensitive apparatus amounted to about \$7,000,000, yet less than $\frac{1}{2}\%$ was spent for advertising this product [R. Vol. III, p. 71].

Significantly, the claims in suit read on each of plaintiff's commercial models listed on Exhibit 24 [R. Vol. III, pp. 701, 702, 714], therefore, each device comes within the scope of both patents in suit and the striking commercial success applies to both.

The presumption of validity is further strengthened by the fact that the trade (*i.e.*, the U.S. Air Force) was at first doubtful of the principle of plaintiff's new man-sensitive apparatus [R. Vol. III, p. 276], this doubt was later displaced and large quantities of the devices were purchased. *United States v. Adams, supra*. This doubt and its later displacement is uncontradicted by defendants.

The fact that there was a long-felt want in the industry while experts were trying to solve the problems of the prior art, strengthens the presumption of validity and is cogent evidence of patentable invention. *Tile Council of America, Inc. v. Ceramic Tilers Supply, Inc.*, 149 U.S.P.Q. 398, 408 (S.D. Cal., 1966); *Moist Cold Refrigerator Co. v. Lou Johnson Co.*, 249 F. 2d 246, 253 (9th Cir., 1957); *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 68, 67 L. Ed. 523. In this regard people's lives were being lost due to the deficiencies of the prior art [R. Vol. III, pp. 271-272], engineers highly skilled in the relevant art working at American Seating were engaged in a search for a safety apparatus which would overcome these deficiencies [R. Vol. III, p. 205] and as a result a number of vehicle-sensitive safety apparatus were developed. However, none were commercially acceptable [R. Vol. III, p.

208]. It was finally plaintiff's multi-directional man-sensitive apparatus which met with acceptance in the market place. This evidence is unrefuted by the defendants.

The presumption of validity is further strengthened by the fact that defendants adopted the patented man-sensitive apparatus after plaintiff had successfully entered the field with its device. *Tile Council of America Inc. v. Ceramic Tilers Supply Inc.*, *supra*.

The presumption of validity is further strengthened by the fact that the inventors of the patents in suit succeeded where other highly skilled engineers (at American Seating Company) failed [R. Vol. III, p. 208]. *United States Pipe and Foundry Co. v. Woodward Iron Co.* (4th Cir., 1964), 327 F. 2d 242.

The presumption of validity is further strengthened because plaintiff was a pioneer, and an innovator by introducing a man-sensitive safety apparatus on the market, whereas, defendants *later* copied the inventive feature thereof and introduced one on the market after acquiring four of plaintiff's devices [R. Vol. III, pp. 86, 90-91]. *United States Pipe and Foundry Co. v. Woodward Iron Co.* (4th Cir., 1964), 327 F. 2d 242.

The presumption of validity attending plaintiff's patents is further strengthened by their extended history in the Patent Office over a period of more than *five years*, during which time careful consideration was given the claimed inventions by the U.S. Patent Office [Exs. 131, 132]. The presumption of validity of claims 7 and 9 of '233 patent is additionally strengthened by the considered opinion of the Board of Appeals of the U.S. Patent Office which considered and allowed these claims [Ex. 131, pp. 88-91]. *S. H. Kress & Company v. Aghnides* (4th Cir., 1957), 246 F. 2d 718.

The presumption of validity attending both patents in suit is further strengthened because corresponding patent applications were filed throughout the world under the International Convention and patents issued thereon (basic patent '233 has corresponding patents in Great Britain—Ex. 33, France—Ex. 34, Japan—Ex. 35, Canada—Ex. 36; improvement patent '234 has corresponding patents in Great Britain—Ex. 37, France—Ex. 38; West Germany—Ex. 39; Japan—Ex. 40, and Canada—Ex. 41], license agreements have been extended to both domestic and foreign manufacturers (United States — American Seating Co., Ex. 17 and Hardman Tool & Engineering Company, Ex. 18; France — SARMA, Exs. 22, 23; England — Teleflex Products Ltd., Exs. 19, 20; Japan—Shimadzu, Ex. 21), and substantial royalties have been received under both domestic and foreign license agreements (United States — in excess of \$10,000 at 6% [R. Vol. III, p. 39, Ex. 17]; foreign — about \$50,000 [R. Vol. III, p. 45]). *United States Pipe and Foundry Co. v. Woodward Iron Co.*, *supra*.

Defendants assert that only nominal royalties have been received and that no royalties have been received under the Hardman license [Ex. 18] and minimum royalties have ceased under the American Seating license [Ex. 17]. Directly contrary to this assertion. \$10,000 royalties at a 6% rate is hardly minimal. Regarding American Seating Company's royalty payments, Mr. McAllister testified royalties were not received during the last reporting period and royalties are paid on shipment which ". . . would mean that they have not shipped any during the last report period" [R. Vol. III, p. 138]. Royalties could hardly be expected to be reported under the Hardman agreement as the first royalty was not due until February 15, 1965 after trial was completed [R. Vol. III, p. 141]. Defendants' as-

sertions are unsupported by the facts. Besides plaintiff and defendants, Plaintiffs licensees American Seating Company and Hardman Tool and Engineering are the major producers of the safety apparatus in question [R. Vol. III, p. 36].

Defendants also attempt to distract from the striking commercial success by asserting that royalties under the foreign licenses could not be divided from payments for know-how and technical information. The fact that foreign licensees pay for know-how and technical assistance for the patented devices evidences its scientific advance and does not detract from commercial success at all.

Moreover, defendants' assertion is not supported by the facts. Mr. McAllister testified in regard to the Teleflex Agreement [Ex. 19] on cross-examination that 5% is the base royalty and the difference between it and the higher percentages is for know-how [R. Vol. III, p. 150]. The Shimadzu license [Ex. 21] has a separate item of \$10,000 provided for technical assistance (Section 5) with a 5% royalty on top of that [R. Vol. III, p. 157]. The SARMA license [Ex. 23] has Section 4 which provides for \$10,000 to cover technical and manufacturing data and has Section 5 which provides for a 5% royalty on the product. Defendants' assertions are directly contrary to the facts.

Contrary to defendants' assertions, foreign patents and licenses are relevant and cogent evidence of worldwide acceptance and commercial success strengthening the presumption of validity *United States Pipe and Foundry Co. v. Woodward Iron Co., supra*.

The presumption of validity accompanying the patents in suit has been strengthened and defendants have not overcome this presumption by the citation of the Ham,

Burdon and Ricketts trolley catcher patents. These patents were discovered by defendants after they were charged with infringement, and defendants assert that they destroy the presumption of validity. However, the patents cited by the Patent Office are more pertinent than the trolley catcher patents, and hence the presumption of validity is not affected.

For example, the Sharpe patent discloses an arrangement for catching the leg of a cow, and the Patent Office held the inventions patentable over the Sharpe patent itself and over the Sharpe patent in combination with patents to Scheuer, Caouette and Trouin which showed other locking arrangements [Ex. 131, pp. 88-91].

The Sharpe patent directed to catching the leg of a cow is in a field and for a purpose much more closely related to the patented inventions than are the devices of trolley catcher patents that serve to catch a pole as it moves vertically in the air due to the force of a spring or weight when the trolley catcher disengages the trolley wire.

D. The Ham, Burdon, and Ricketts Trolley Catcher Patents Are Improper Prior Art References as They Are in a Non-Analogous Art.

Plaintiff asserts the prior trolley catchers lie in a remote non-analogous art and are not pertinent prior art.

Defendants assert the purpose of the locking mechanism of the Ham, Burdon, and Ricketts trolley catcher patents is to stop movement of a cord, such purpose is the same as the patented devices and, therefore, Ham, Burdon, and Ricketts are not in a non-analogous art.

The law in support of plaintiff's position includes the leading Ninth Circuit case of *Stearns v. Tinker &*

Rasor, 220 F. 2d 49, (9th Cir., 1955), where the Court stated:

“It is said that if the element and purposes in one *art* are related and similar to those in another *art*, and because and by reasons of that relation and similarity make an appeal to the mind of a person having mechanical skill and knowledge of the purposes of the other art, then such *arts* must be said to be analogous; and, if the converse is true, they are non-analogous *arts*. . . . Even if we assume here a relation and similarity of element in holiday detectors [art of invention in suit] and snap switches [non-analogous prior art], the *purpose of the snap-switch art*, i.e. to open and close an electric circuit, has no relation or similarity to the *purpose of the art* of holiday detection, i.e. to determine the condition of pipe coating by subjecting it to electrical inspection.” (Emphasis and bracketed material added.)

The facts in this case fit the Ninth Circuit rule laid out in the *Stearns* case exactly. The *Stearns* test relates to *purpose of the arts*. The arts involved in the *Stearns* case are as follows: the prior art is the snap-switch art and the patented art is the art of holiday detectors. In the present case the *prior art asserted by defendants is the trolley catcher art*, and the *patented art is the art of safety devices for keeping a man in his seat*.

As stated by Mr. Glauser, a highly skilled engineer in the art:

“A. In my view point the main purpose of the patent in suit . . . is a device for keeping a man in his seat.” [R. Vol. III, p. 905].

Mr. McAllister (president of plaintiff) testified to the very same purpose, i.e., of keeping a man in his seat [R. Vol. III, p. 25]. The specification of the pat-

ents in suit, the claims in suit, the file histories of the patents in suit all assert the same purpose, *i.e.*, to protect a person in his seat. Thus, the primary purpose of the patented art, which includes the complete safety system (*i.e.*, the inertia reel for mounting on a seat or in a vehicle and harness straps for coupling to a person's body), is to keep a man in his seat, which is markedly different from catching a trolley pole in the air.

Comparing the trolley catcher devices and the patented devices, Mr. Glauser testified in regard to the instantaneous action of the patented devices during crash conditions, stating:

“ . . . the whole thing is over in a fraction of a second as far as whether he is going to live or die, he has a fraction of a second, and within this fraction of a second we have to lock this device up and secure him in the seat, . . .” [R. Vol. III, p. 1729].

He also testified the patented devices weigh about a pound and must withstand thousands of pounds (military specs. require 4000 pounds). In contrast, the trolley catchers are crude devices that weigh 15 to 20 pounds, only need to catch 20 to 30 pounds [R. Vol. III, pp. 1732-1734] and can lock the trolley boom in about two feet of rope travel and still operate satisfactorily [R. Vol. III, p. 1733]. Even Ricketts in his patent starting at page 1, line 87, indicates that it really doesn't matter if a trolley catcher locks up right away, *i.e.*, on the first bounce or not.

One of the outstanding features of the patented devices is its multidirectional sensitivity. The need for a multidirectional operation does not exist in trolley catchers. In this regard, the *trolley catcher patents only teach the sensing of movement in a vertical direction not multidirections* (*i.e.*, See the Ricketts patent, p. 1, lines

33-37, the Burdon patent, p. 1, lines 85-90, and the Ham patent, p. 1, lines 41-45).

Defendants seek to detract from the multidirectional feature of the patented devices by asserting that it can only occur when guides or frames are used and such guides or frames are not included in the claims in suit. This assertion is directly contrary to the record. In achieving the multidirectional operation of the patented devices, the safety reel and the strap coupled to the man are arranged so that regardless of the direction of movement of the man, the forces of acceleration applied to the strap will always be in one constant direction relative to the inertia reel. This can be achieved in two ways; one is by the use of guides at the top of the seat [R. Vol. III, pp. 570, 571], the other is by mounting the reel near the top of the seat as defendants do [See Exs. 81 and 82, App'x. F], in which case the guides can be eliminated [R. Vol. III, p. 571]. These guides or the position of the patented devices for multidirectional operation are not spelled out in the claims in detail but are encompassed in the overall teaching and concept of the term safety apparatus [R. Vol. III, pp. 913-914].

Defendants assert the purpose of the patented devices and the trolley catchers are the same but they base their contentions on the purpose of bits and pieces rather than upon the overall purpose, of the art which is the test of the *Stearns* case.

The purpose of small portions of a device or its elements, such as the locking mechanism in the device, or the flexible connector, or the reel, etc. is just not pertinent to the test. If the *Stearns* test was as defendants contend, it would have no meaning even to the facts of that case. For example, in the *Stearns* case the purpose of the *coil spring* in *both* the *snap-switch device* and the *holiday detector device* is to make

electrical contact. Therefore, according to defendants, snap-switches and holiday detectors are in the same analogous art contrary to the *Stearns* decision. It is the *purpose of the art* not the purpose of some detailed part of the patented device that is used in the *Stearns* test.

Applying the facts in this case to the *Stearns* test: the purpose of the *Trolley catcher art*, *i.e.*, *to catch a trolley pole as it flies up in the air* [R. Vol. III, p. 1736], has no relation or similarity to the purpose of the *art of safety devices for keeping a man in his seat* [R. Vol. III, p. 25], *i.e.*, *to protect a man in his seat during a crash or a violent maneuver or the like, consequently the arts are non-analogous*.

The question basically reduces to a question of whether one skilled in the patented art would naturally have looked to the alleged prior art. *Stearns v. Tinker & Rasor*, *supra*, page 56; *General Metals Powder Company v. S. K. Wellman Company*, 157 F. 2d 505, 510 (6th Cir., 1946).

None of the following highly skilled engineers in the art of devices for keeping persons in their seat considered the trolley catcher art in designing man-sensitive safety devices, even though the trolley catcher patents issued about half a century ago: *Mr. Pfankuch* (formerly executive vice president of plaintiff and a co-inventor of '233 patent) [R. Vol. III, p. 289]; *Mr. Wrighton* (project engineer for plaintiff and co-inventor of '233 and '234 patents) [R. Vol. III, p. 351]; *Mr. Luttrell* (design engineer of plaintiff) [R. Vol. III, p. 449]; *Plaintiff's engineers* [R. Vol. III, p. 448]; *American Seating Company engineers* [R. Vol. III, p. 222].

Mr. Glauser testified that an engineer skilled in the art of designing the prior vehicle-sensitive apparatus

would not at all look to the art of trolley catchers to improve on their design.

“ . . . because the environment that he lives in, the thing that he is trying to do is to save people's lives, not to grab hold of a pole in the air. He would be concerned with the physiological make-up of a human being.” [R. Vol. III, p. 1736] (Emphasis added.)

Defendants assert that the use of the trolley catchers is the same as the patented devices and attempt to do this by equating men and trolley poles. Defendants cannot make this hurdle because, as Mr. Glauser's unchallenged and unrefuted testimony bears out, people skilled in the patented art are concerned with the physiological makeup of human beings having different physical characteristics, such as reflexes, and not just catching a pole having fixed characteristics [R. Vol. III, p. 1736].

The facts of the *Stearns* case, *supra*, are very similar to this case wherein the Court stated at page 58:

“ . . . We have here, then, a patent for an improvement which fills a long felt need, which those schooled in the art had not been able to devise before the patentee, and which meets with acceptance in the market. When these indicia of invention are taken into account together with the true state of the prior art and what Stearns actually did to improve the art, it must be concluded that the Stearns patent is not invalid for want of invention. [Cases cited]. . . ”

Defendants themselves consider the trolley catcher art, including the Ham, Burdon and Ricketts patents non-analogous art. Defendants knew about these patents by September 1960 long before their patent [Ex.

66] was issued by the Patent Office in May 1961 [Ex. 127, Answer to Interrogatory No. 41]. Defendants admit their patent [Ex. 66] describes their device [R. Vol. III, p. 1102] and if they seriously believed these trolley catcher patents pertinent, they had a *duty* to call these trolley catcher patents to the attention of the Patent Office in connection with their very own patent. *United States v. Standard Electric Time Company*, 155 F. Supp. 949, 952 (D. Mass. 1957), appeal dismissed, 254 F. 2d 598 (1st Cir., 1958); *Admiral Corporation v. Zenith Radio Corporation*, 296 F. 2d 708 (10th Cir., 1961); *Ruth v. Blue River Constructors*, 224 F. Supp. 717, 724 (D.C. Colo. 1963).

This is particularly true in this instance because Mr. Lautier, vice president of defendants, represented to plaintiff that he considered the trolley catcher patents to more closely resemble the construction and mode of operation of defendants' device than plaintiff's patented devices [Ex. 133, p. 2 of Lautier letter of November 14, 1960], and he communicated his views to plaintiff about six months before defendants' patent issued.

It is presumed that a person is innocent of a crime or wrong, that the official duty of an attorney is regularly performed, and that the law has been obeyed. California Code of Civil Procedure, Section 1963, paragraphs 1, 3 and 15; *People v. Gay et al.* (1940), 37 Cal. App. 2d 246, 248 [See 28 U.S.C. 1652 and *Lustgarten v. Felt*, 92 F. 2d 277 (3rd Cir., 1937), to effect that state laws of presumptions apply in Federal Courts.]

Defendants have not controverted these presumptions and hence it is presumed that defendants and their attorneys carried out their duties to the Patent Office and to the general public. In fact, defendants did not produce *any* witnesses who could controvert these preumptions because defendants did not produce as witnesses

any of their own people who had knowledge of defendants' activities. Accordingly, it must be presumed that *defendants and their attorneys considered the trolley catcher patents non-analogous art.*

Defendants' position with respect to the pertinency of the trolley catcher patents to their devices shifts as defendants see fit to meet their erroneous arguments. For example, before trial defendants represented that the trolley catchers more closely resemble defendants' devices than the patented devices [Mr. Lautier's letter of November 14, 1960—Ex. 133]. Then, at trial, defendants asserted their devices are not acceleration-responsive and since the trolley catchers are acceleration-responsive, defendants dropped their earlier argument to plaintiff, reversed themselves and argued:

“Defendants' patent, Exh. 66, contains *claims* on a safety device which are completely different than the safety devices disclosed in the prior patents to Ham, Burdon and Ricketts.” [Defendants' Memorandum After Trial, p. 25, R. Vol. III, p. 759].

Now that the District Court found defendants' devices acceleration-responsive and they cannot effectively argue this distinction any longer, defendants reverse themselves again and in their title to Appendix C, page 3, which purportedly compares the defendants' devices and the Ham trolley catcher device, they state DEFENDANTS' DEVICE EMPLOYS ELEMENTS OF PRIOR ART.

Defendants seek to justify their contradictory positions on the ground that it is the claims in their patent that are important. Defendants represented to the Patent Office they had a patentable invention defined in their claims. However, they could not truthfully do so if they truly believed the Ham patent employs the elements of their device (as they now assert) and is

pertinent. Such uninhibited shifting of positions demonstrates the weakness of defendants' defenses.

Thus, prior to this controversy, defendants' position was that these prior art trolley catcher devices were not important with respect to their own patent (they did not call them to the attention of the Patent Office), but now defendants contend that these patents are controlling on the issues in this case.

The Patent Office even considers the trolley catcher art non-analogous. There is a presumption that the Patent Office carries out its official duties. In fact, Section 904.01(c) of the Manual of Patent Office Examining Procedure (2nd Ed.) (App. Op. Br. p. 18), instructs Examiners to search all analogous art wherever classified.

In this case, the Patent Office did not cite any trolley catcher patents against either patent in suit, or against fourteen other man-sensitive safety apparatus patents, eight of which are owned by the plaintiff [R. Vol. III, p. 748, Ex. 114]. Additionally, none of these trolley catcher patents were cited by the Patent Office against the defendants' patent [Ex. 66] which admittedly covers the defendants' devices in suit [R. Vol. III, p. 751]. *These numerous patents issued over a period of approximately six years, showing that the failure of the Patent Office to cite the trolley catchers as prior art is not an oversight.* The Patent Office simply does not consider the trolley catchers to be pertinent.

E. Misjoinder of Inventors Does Not Exist and Even if It Did, It Would Not Invalidate the Improvement Patent.

Plaintiff asserts the Cushman model [Ex. 64] is an incomplete experimental model made during the joint effort of Messrs. Wrighton and Cushman in develop-

ing the '234 patented device, and it has a reel which an inertia pawl mounted on the reel and a locking ring around the outside of the reel essentially the same as defendants' infringing devices, showing that the inventors even contemplated the defendants' detailed structure when the '234 patent was filed approximately four or five years before defendants developed their structure.

Defendants assert that Mr. Wrighton, co-inventor of the '234 patent, is misjoined because "all Wrighton did was to *see* the [Cushman] model and drawing after they were completed by Cushman on November 20, 1952" (App. Op. Br. p. 41).

The facts and law in support of plaintiff's position are as follows: Mr. Wrighton testified on cross-examination:

"Q. Did your joint effort with Mr. Cushman start after November 20, 1952? A. *No, this was prior to that time.*

Q. *That your joint effort started?* A. *On the '234 patent?*

Q. *Yes.* A. *Yes.*" [R. Vol. III, p. 385]. (Emphasis added).

Thus, Wrighton and Cushman started their joint effort prior to the time Mr. Cushman made his model and defendants have produced absolutely no evidence to refute this fact.

The execution of the Oath of the patent application by Messrs. Cushman and Wrighton raises a *prima facie* presumption of joint inventorship and the burden is on the person attacking it to show otherwise by clear strong and convincing evidence. *Cummings v. Moore*, 202 F. 2d 145, 148 (10th Cir. 1953).

The only evidence defendants assert in support of their position is Exhibits AI and AJ and the testimony of Mr. Wrighton and Mr. Gabriel which defend-

ants contend proves that all the requirements of the *claims* in the '234 patent are in the Cushman model. Even assuming defendants are right in this contention it would not prevent Wrighton and Cushman from being joint inventors because the joint effort started before the date the model was completed.

Moreover, defendants' representations are contrary to the testimony of Mr. Gabriel and Mr. Wrighton.

The true facts are that Mr. Wrighton testified that the Cushman model was merely a breadboard model made to demonstrate the inertia principle of the device [R. Vol. III, p. 337], and was not sold commercially [R. Vol. III, p. 384]. In fact, the testimony of both Mr. Wrighton and Mr. Gabriel show that the Cushman model [Ex. 64] is not a complete safety apparatus model because it does not have a resilient means to rewind the reel (a rewind spring) [Wrighton—R. Vol. III, p. 396; Gabriel—R. Vol. III, p. 1276] and only has a small leather thong on the reel as opposed to a cable adapted to be coupled to a person's body [Wrighton—R. Vol. III, p. 395; Gabriel—R. Vol. III, p. 1275].

Defendants attempt to equate the thong to a cable adapted to be coupled to a body [R. Vol. III, p. 1275] and argue that a rewind spring should be included to make the Cushman model operable [R. Vol. III, p. 397]. However, the fact remains the claims require a cable adapted to be coupled to a person's body and a resilient means (or rewind spring) to rewind the reel. These elements are missing from the Cushman model. Thus the Cushman model could not amount to a reduction to practice as would anticipate the joint contribution. *Stearns v. Tinker & Rasor*, 220 F. 2d 49 (9th Cir. 1955), the reason being all of the elements of the claims are not present. *S. W. Farber, Inc. v. Texas Instruments Inc.*, 211 F. Supp. 686, 692 (D. Del., 1962);

Akers v. Papst, 113 F. 2d 136, 139 (C.C.P.A. 1940). Defendants have not met their burden of proving lack of joint invention on the part of Wrighton and Cushman because misjoinder does not exist.

The defense of misjoinder of inventors is a highly technical one and looked on with disfavor by the courts. *Kendall Company v. Tetley Tea Co. Inc.*, 189 F. 2d 558 (1st Cir., 1951). 35 U.S.C. 256 was enacted in 1952 to alleviate the hardship of this disfavored defense and expressly permits correction of inventors under the facts of this case but the District Court did not find it necessary to do so. Plaintiff's Reply Memorandum, beginning at pages 27 and 29, discusses this subject in detail [R. Vol. II, p. 852, 854]. There is absolutely no substance in fact or in law to defendants' assertions.

Conclusion.

It is submitted that plaintiff's man-sensitive safety apparatus is an important contribution to science and to the welfare of man and satisfies the constitutional standard of invention. It is a radical departure from what those skilled in the relevant art had done in the past.

Virtually all of the industry has adopted this apparatus. Virtually all of the industry has recognized plaintiff's proprietary rights, with the exception of defendants.

Defendants purchased some of plaintiff's devices and copied the essential features thereof into a product of their own after plaintiff's devices had been widely accepted.

Defendants were given prompt notice of plaintiff's proprietary rights. However, defendants refused to respect these rights and deliberately and wilfully attempt to destroy these rights and to destroy plaintiff's worldwide patent and license position.

The defenses asserted by defendants are a sham and are not made in good faith. They produced two witnesses that were recently employed by their counsel in California who had no direct knowledge of the facts but only that which defendants' counsel provided to them.

The defense of non-infringement because defendants' devices have a different mode of operation is *directly contrary* to numerous statements made by defendants to the trade and to the Patent Office prior to this action.

The defense of invalidity because of the ancient trolley catcher patents is *directly contra* to defendants' position before the Patent Office concerning the pertinency of these patents. These ancient patents are in a remote non-analogous art and are not even pertinent prior art.

The numerous other defenses asserted by defendants' witnesses are not well founded in fact or law.

There is no reason to depart from the traditional rule that the findings of fact of the trial judge should not be disturbed unless clearly erroneous, particularly here where defendants have used as witnesses two men who are not skilled in the art and who had no direct knowledge of the facts.

It is submitted that the decision of the Trial Court should be affirmed.

Respectfully submitted,

C. RUSSELL HALE,
D. BRUCE PROUT, of
CHRISTIE, PARKER & HALE,
Attorneys for Appellee.

Certificate.

I certify that, in connection with the preparation of this brief, I have examined Rules 18, 19 and 39 of the United States Court of Appeals for the Ninth Circuit, and that, in my opinion, the foregoing brief is in full compliance with those rules.

D. BRUCE PROUT





PACIFIC SCIENTIFIC COMPANY SALES OF

MAN SENSITIVE SAFETY REELS
(MODELS HR30, 0101, 0106, 0107, 0108,
0103114, 0103144, 0103162, 0103136)

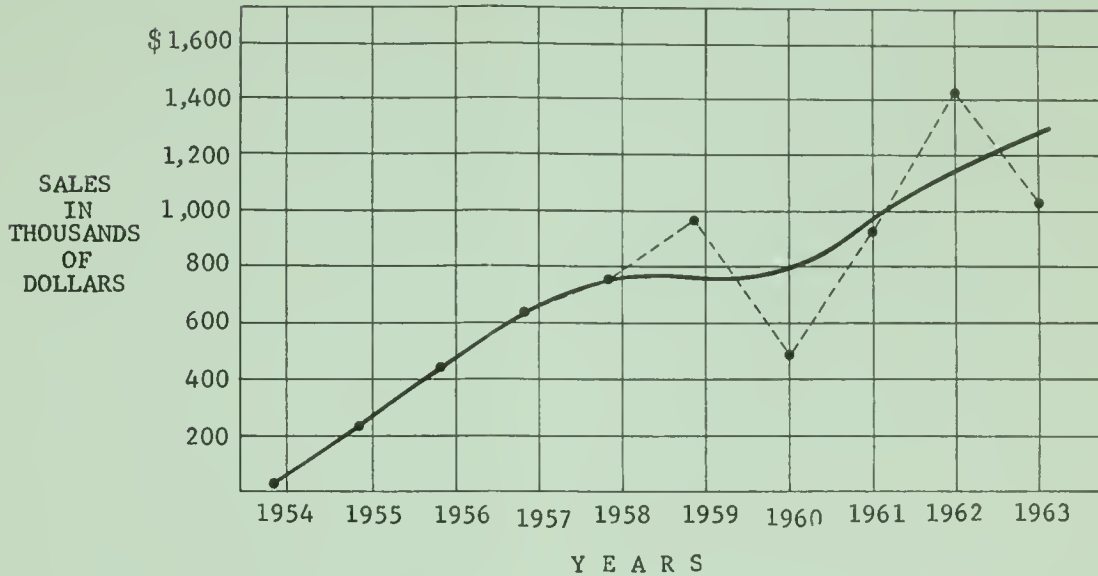
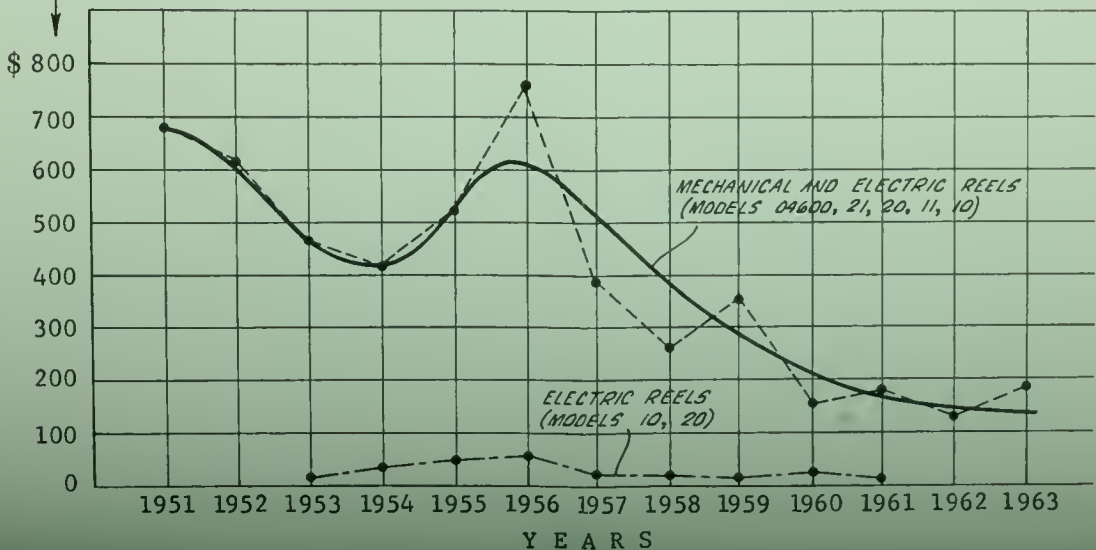


Exhibit 62

SALES IN THOUSANDS OF DOLLARS

AMERICAN SEATING COMPANY SALES OF VEHICLE SENSITIVE SAFETY REELS





1954
FIRST SOLD

Plaintiff's Model HR30
(Patent '234 device)



Exhibit 7

1955
FIRST SOLD

1957
Model 0101—Commercial Version
Shown to Defendants
V.P. Mr. Lautier

Plaintiff's Model 0106
(Next Generation Model)

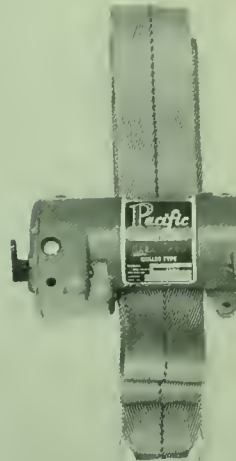


Exhibit 6

1958
FIRST SOLD

Defendants' Single Reel Model

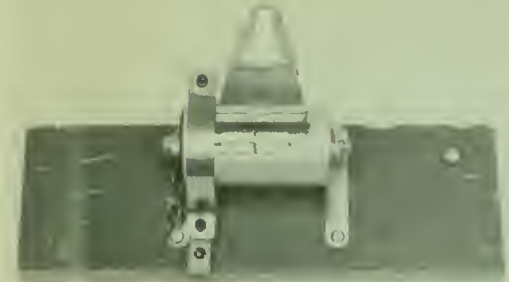


Exhibit 95

Defendants' Double Reel Model



Exhibit 13



MAN SENSITIVE SAFETY REEL
(BASIC PAT. IN SUIT)
FRANKUCH ET AL. - PAT NO. 2,845,233

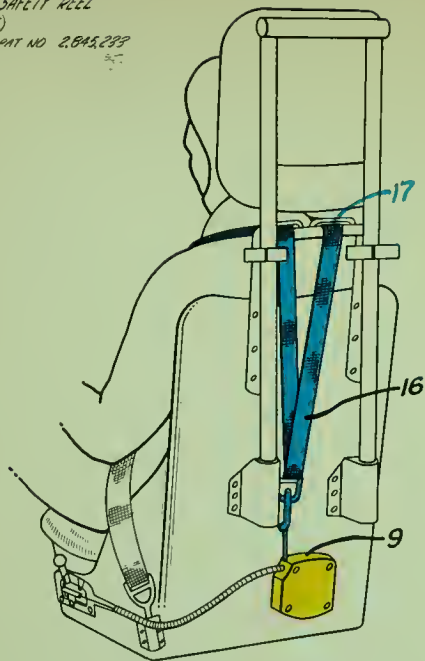


FIG. 1.

Exhibit 70

MAN SENSITIVE SAFETY REEL
(IMPROVEMENT PATENT IN SUIT)
CUSHMAN ET AL. - PATENT NO. 2,845,234

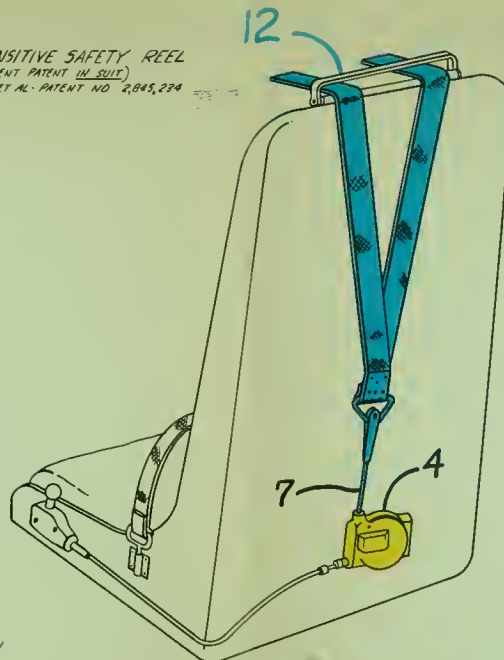


FIG. 1.

Exhibit 75

MAN SENSITIVE SAFETY REEL
(BASIC PAT. IN SUIT)
FRANKUCH ET AL. - PAT NO. 2,845,233

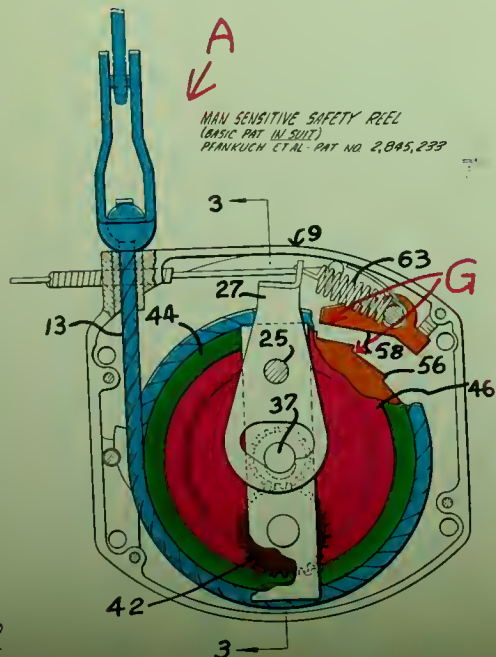


FIG. 2.

Exhibit 72

MAN SENSITIVE SAFETY REEL
(IMPROVEMENT PAT. IN SUIT)
CUSHMAN ET AL. -
PAT NO. 2,845,234

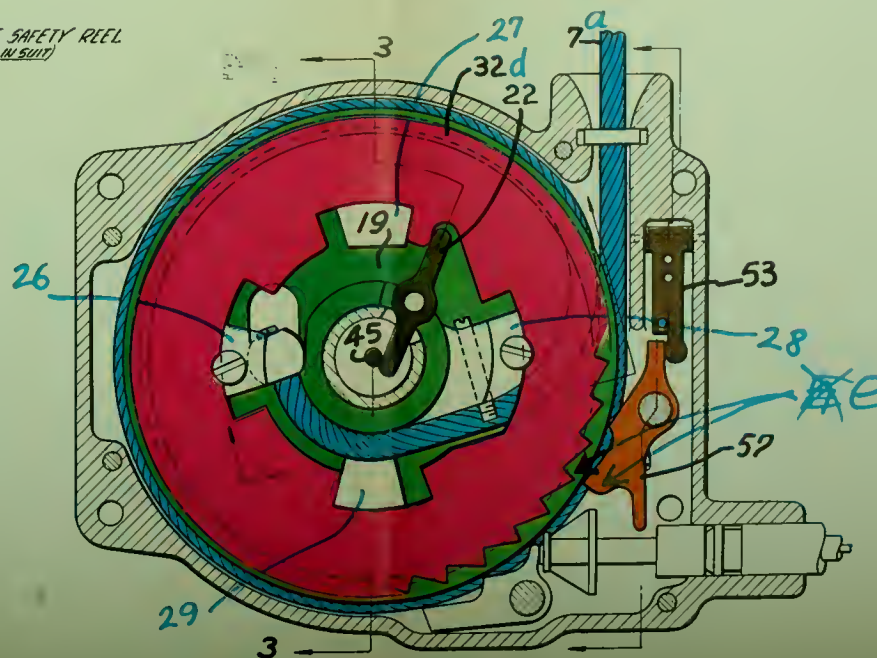


FIG. 2.

Exhibit 76

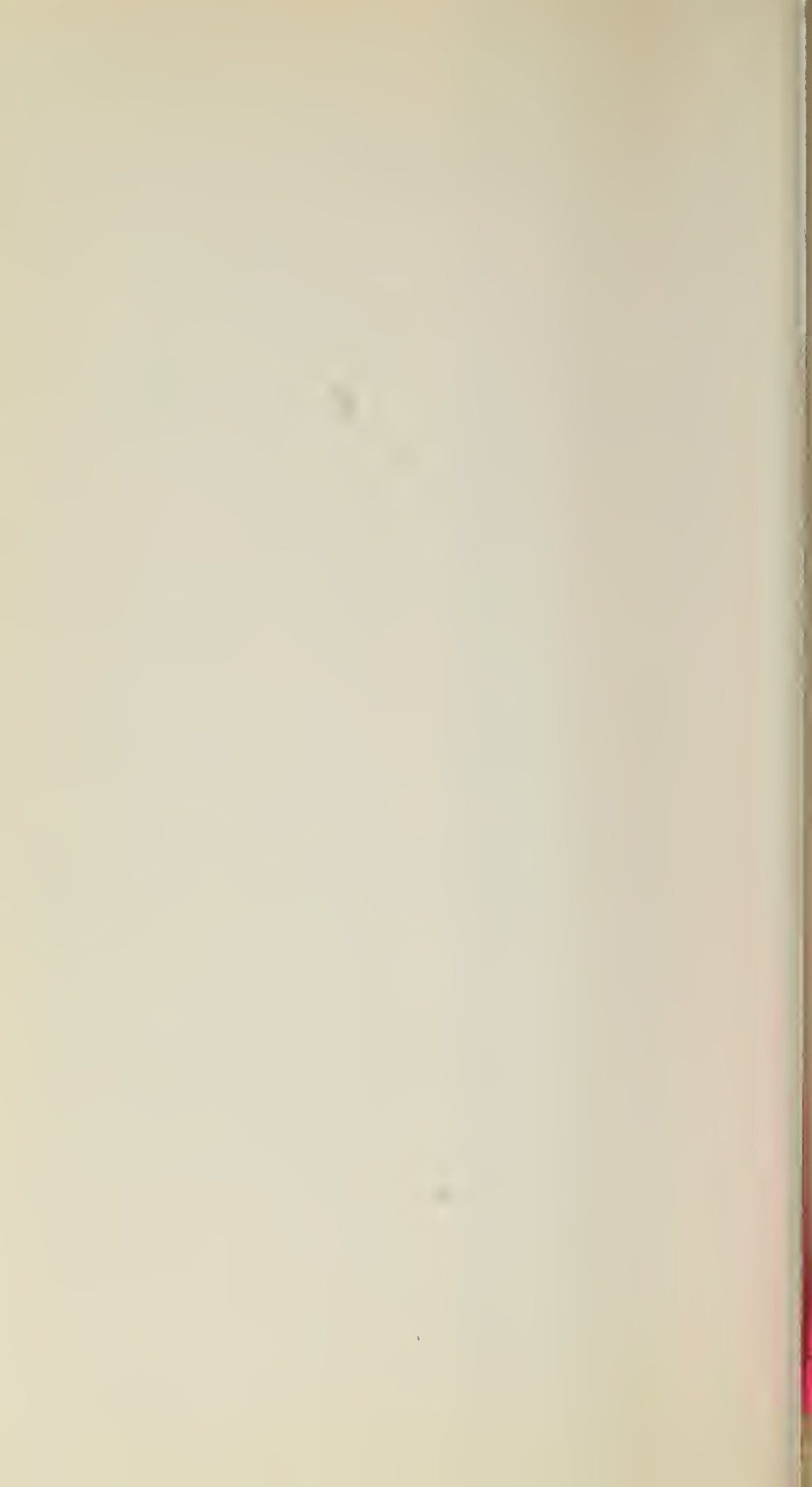


Exhibit 82

DEFENDANT'S
MAN SENSITIVE SAFETY REEL
MODELS 95 & 65

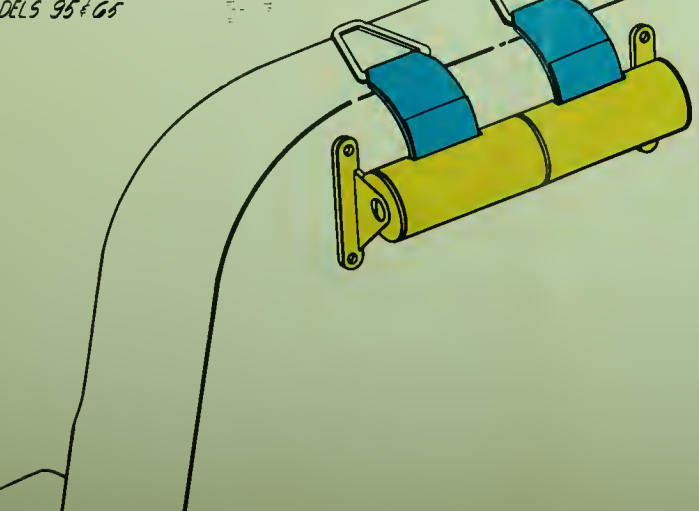


Exhibit 81

Exhibit 81

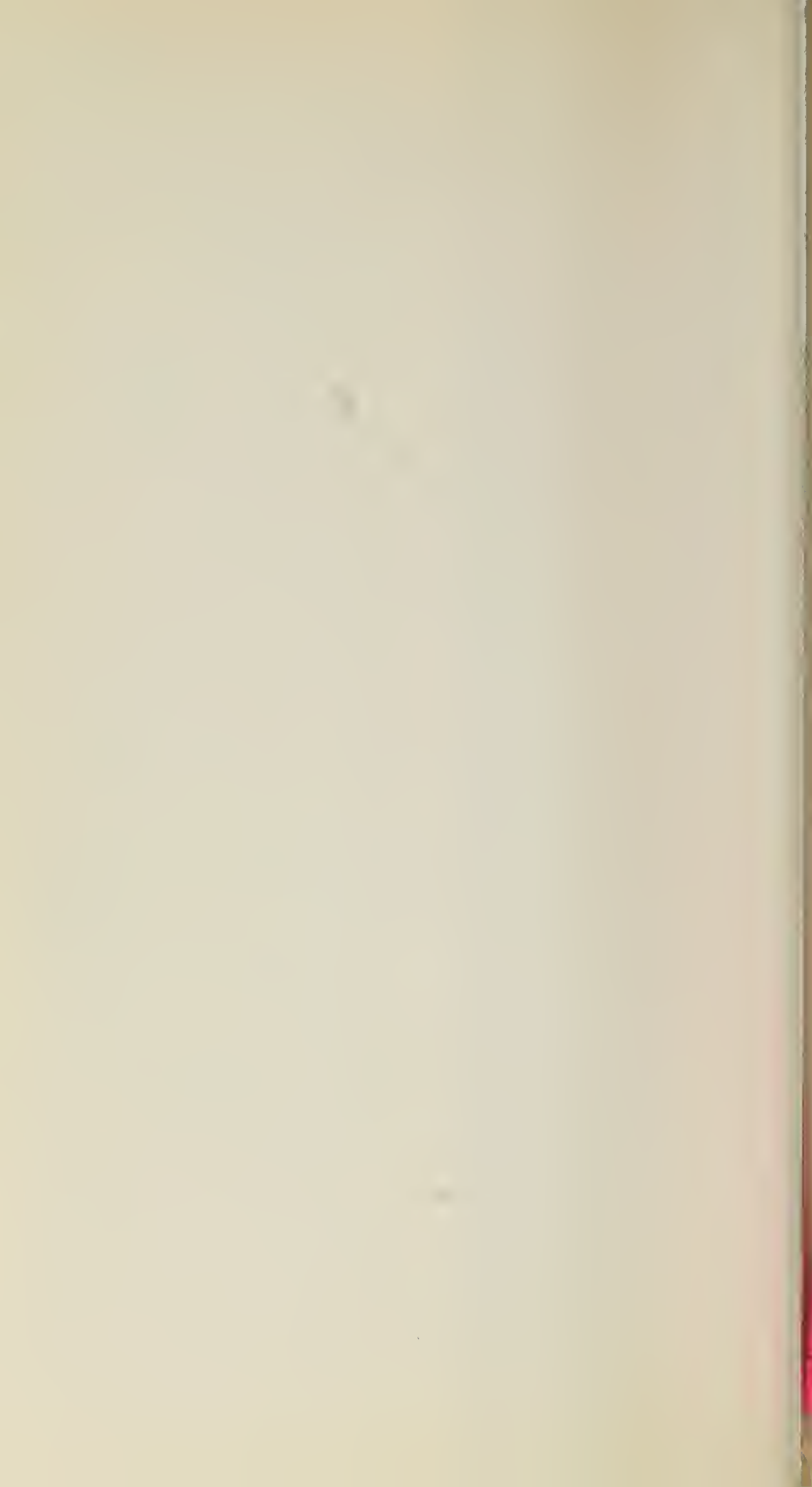
Exhibit 84

DEFENDANT'S
MAN SENSITIVE SAFETY
MODELS 94, 102, 95

C.G. x F 36 34 2 W 16 20 38 Ed Ge Z Y 40 d 22 46 F 36 F 34

Exhibit 85

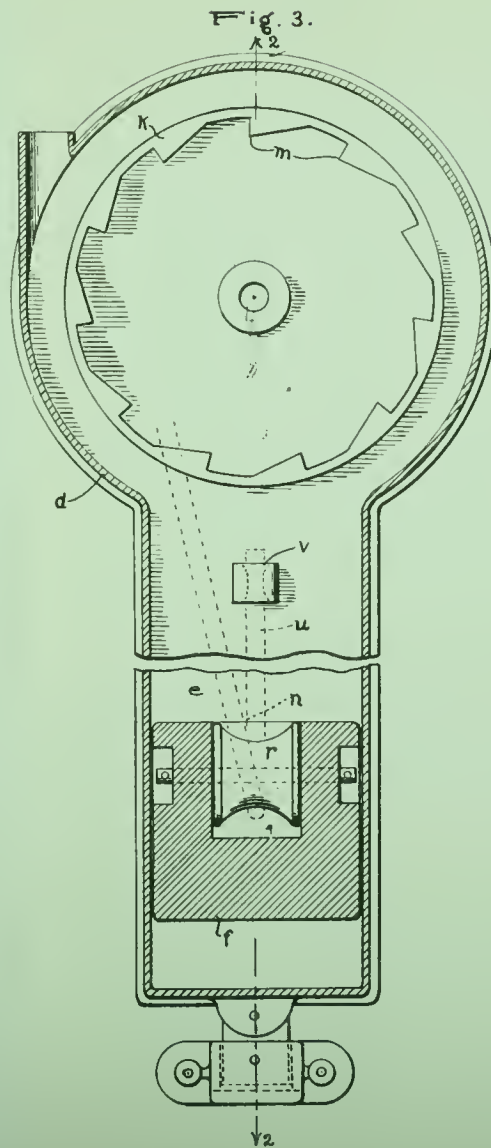
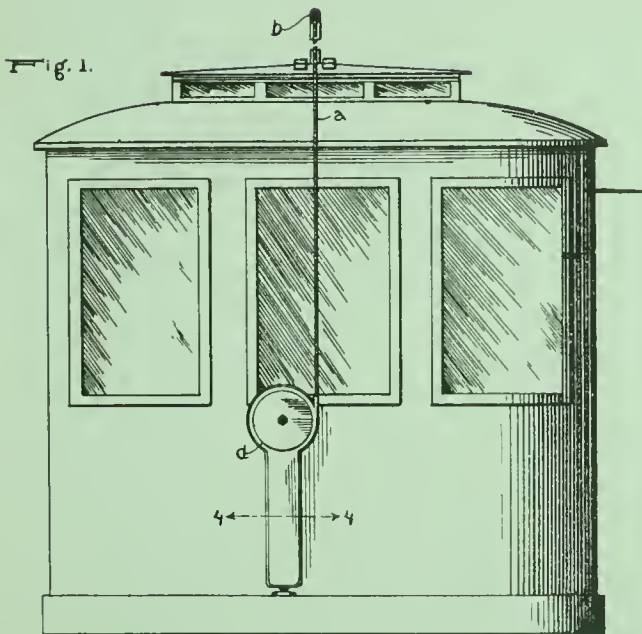
Exhibit 85



W. C. BURDON

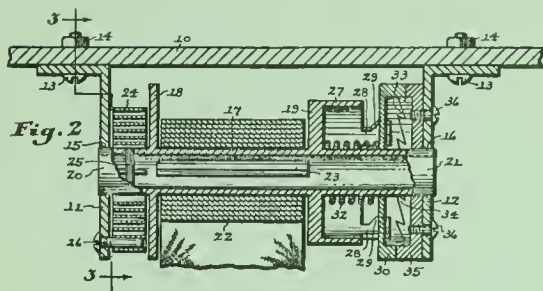
TROLLEY CATCHER

Application Filed Sept. 21, 1906





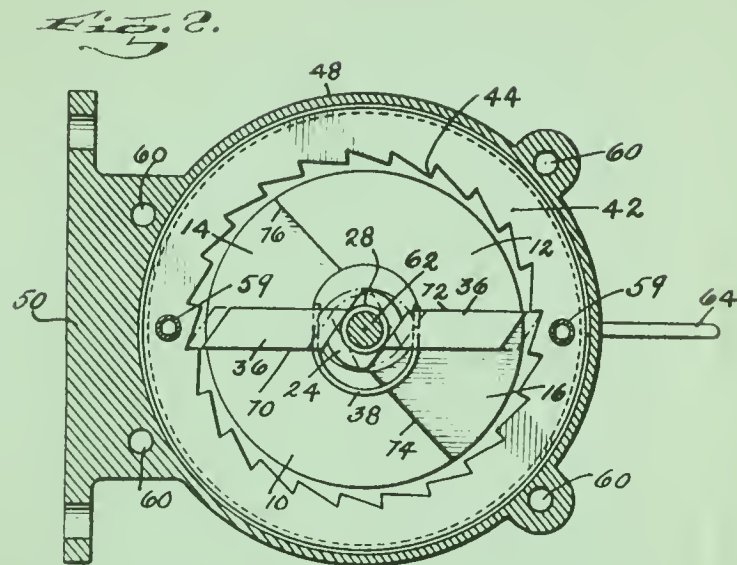
July 15, 1958
A. C. HOVEN ET AL
AUTOMATIC REEL
Filed March 14, 1956



2,843,335

Sept. 20, 1960

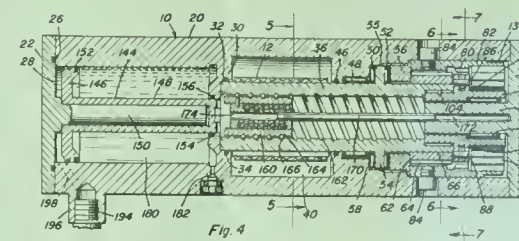
R. A. LAUTIER ET AL
INERTIA REEL
Filed Feb. 1, 1957



2,953,315

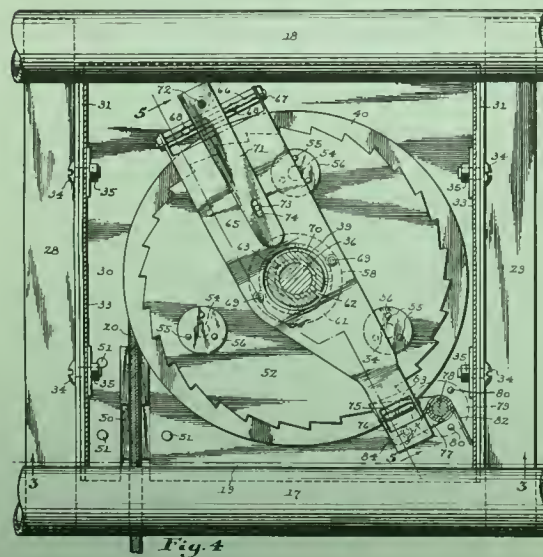
Feb. 12, 1963

R. M. STRICKLAND, JR.
HARNES INERTIA REEL
Filed Dec. 17, 1958



May 12, 1959
C. J. BARECKI
SAFETY EQUIPMENT FOR VEHICLE OCCUPANTS
Filed Sept. 4, 1956

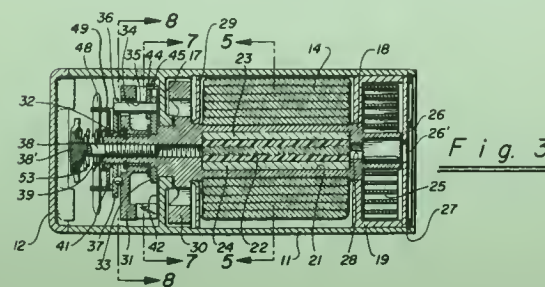
2,886,259



Jan. 23, 1962

C. E. CUSHMAN ET AL
SAFETY HARNESS DEVICE
Filed March 6, 1957

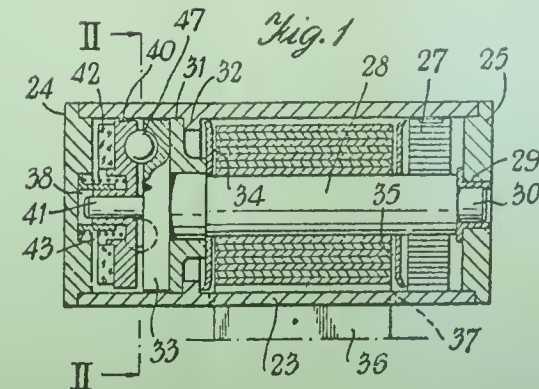
3,018,065



Oct. 16, 1962

J. S. BENTLEY
SAFETY HARNESS
Filed Feb. 12, 1960

3,058,687





COMPARISON OF ELEMENTS OF BASIC PATENT NO. 2,845,233 WITH

Defendants' Devices, Patent No. 2,845,233 Device, Patent No. 2,845,234 Device and Trolley Catcher Patents (Ham, Ricketts & Burdon)

Basic Patent No. 2,845,233 Claim 7 (Exhibit 102)

safety apparatus for preventing a seat occupant of a vehicle from being thrown off his seat, comprising

an inertia lock device adapted to be mounted on the back of the seat, said device having

a rotatably mounted reel therewithin,

a flexible connector wound on said reel and extending outwardly of said device for passing over the body of the seat occupant,

a yieldable resilient member coupled to said reel and tensioned so as to urge rotation of said reel in the direction to wind up the connector thereon to thereby normally maintain a light tension on said flexible connector while allowing the same to yield,

whereby the seat occupant is permitted freedom of motion,

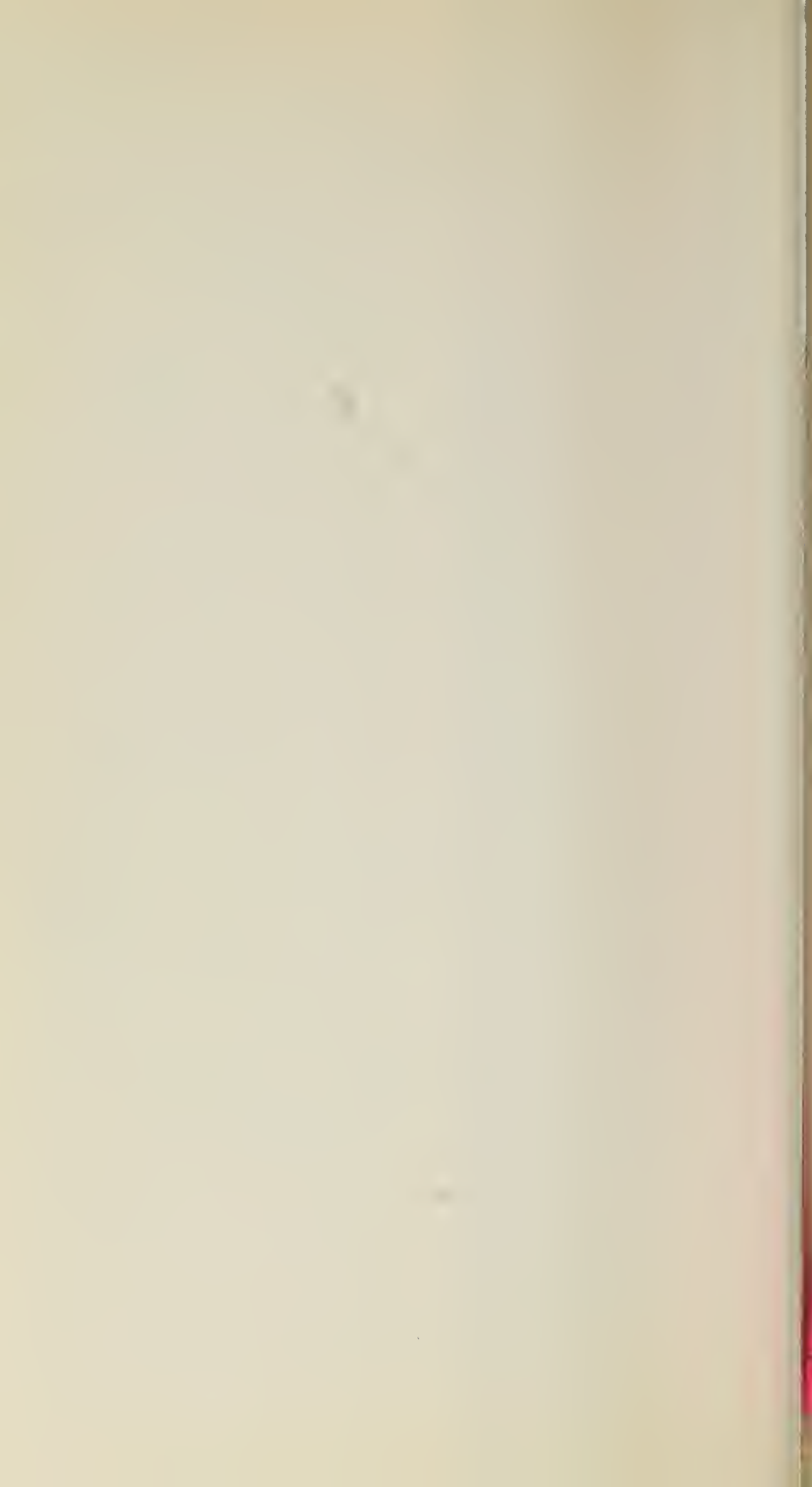
an inertia member turnably movable with respect to said reel,

means for connecting said inertia member with said reel,

locking means within said device for locking said inertia member and reel against turning movement,

movement of said flexible connector outwardly of said device at a rate exceeding a predetermined acceleration, due to a sudden force tending to dislodge the seat occupant, causing said inertia member to resist the turning of said reel and effect the locking of the reel and inertia member by said locking means, thus positively preventing further outward movement of the flexible connector to retain the seat occupant in his seat.

Defs' Devices See Pltf's Exs. 84 & 85	Patent No. '233 See Pltf's Exs. 70, 72 & 73	Patent No. '234 See Pltf's Exs. 75, 76 & 77	Ham Patent No. 700,763 See Defs' Ex. L	Ricketts Patent No. 1,393,570 See Defs' Ex. M	Burdon Patent No. 888,418 See Defs' Ex. N
YES	YES	YES	NO	NO	NO
Whole Device	Whole Device	Whole Device	NO	NO	NO
2	44	19	E	9	C
12	13 and 16	7 (including blue straps)	NO	NO	NO
10	51	39	NO	NO	NO
YES	YES	YES	NO	NO	NO
38 (or 40)	46	32	C	35	W
46	42	22 and 55	5	37 and 33	S
38 (or 40), 16 and 34	57 and 58	57 and 32	P and a ²	30 and 3	P and M
YES	YES	YES	NO	NO	NO



COMPARISON OF ELEMENTS OF BASIC PATENT NO. 2,845,233 WITH

Defendants' Devices, Patent No. 2,845,233 Device, Patent No. 2,845,234 Device and Trolley Catcher Patents (Ham, Ricketts & Burdon)

Basic Patent No. 2,845,233 Claim 9 (Exhibit 109)

Vehicle safety apparatus adapted to be used on a moving vehicle, comprising, in combination,

a supporting housing on said vehicle,

a flexible connector extending from said supporting housing and adapted to engage an occupant in the vehicle,

resilient reel means connected to said flexible member and carried within said housing for normally maintaining a light tension on said flexible connector while permitting the same to yield,

whereby the occupant is allowed freedom of motion

an inertia member within said housing turnably mounted with respect to said reel means,

means for coupling said inertia member to said reel means,

locking means in said housing,

said inertia member being operable by inertia to cause said locking means to lock said flexible connector positively against further movement outwardly with respect to said housing when said flexible connector is pulled outwardly of said housing at a rate exceeding a predetermined acceleration, due to forces tending to dislodge the occupant from his seat, whereby the occupant is prevented from being dislodged.

Def's Devices See Pltff's Exs. 84 & 85	Patent No. '233 See Pltff's Exs. 70, 72 & 73	Patent No. '234 See Pltff's Exs. 75, 76 & 77	Ham Patent No. 700,763 See Defs' Ex. L	Ricketts Patent No. 1,393,570 See Defs' Ex. M	Burdon Patent No. 888,418 See Defs' Ex. N
YES	YES	YES	YES	YES	YES
Yellow portion	9	4	A	1	d
12	13 and 16	7 (including blue straps)	NO	NO	NO
2 and 10	44 and 51	19 and 39	NO	NO	NO
YES	YES	YES	NO	NO	NO
38 (or 40)	46	32	C	35	W
46	42	22 and 55	S	37 and 33	S
38 (or 40), 16 and 34	57 and 58	57 and 32	P and a ²	30 and 3	P and M
YES	YES	YES	NO	NO	NO



COMPARISON OF ELEMENTS OF IMPROVEMENT PATENT NO. 2,845,234 WITH

Defendants' Devices, Patent No. 2,845,234 Device and Trolley Catcher Patents (Ham, Ricketts & Burdon)

Improvement Patent No. 2,845,234 Claim 1 (Exhibit 110)

safety device for mounting in a vehicle to restrain the movement of a body within the vehicle when the body is subjected to relatively high acceleration movement relative to the vehicle comprising

Def's Devices
See Plt's
Exs. 84 & 85

Patent No. 234
See Plt's
Exs. 75, 76 & 77

Ham Patent
No. 700,763
See Defs' Ex. L

Ricketts Patent
No. 1,393,570
See Defs' Ex. M

Burdon Patent
No. 888,418
See Defs' Ex. N

YES	YES	NO	NO	NO
12	7 (including blue straps)	NO	NO	NO
2	19	E	9	C
10	39	F	25	NO
YES	YES	NO	NO	NO
38 (or 40)	32	C	35	N
YES	YES	YES	YES	YES
YES	YES	NO	NO	NO
38 (or 40), 16 and 34	57 and 32	P and a ²	30 and 3	P and M

a cable adapted to be coupled to the body,

a cable reel rotatably mounted in said device,

resilient means coupled to said reel for rotating said reel in one direction to wind up said cable,

said reel rotating in the other direction to unwind the cable responsive to forces exerted by a pull on the cable,

an inertia member rotatably mounted in said device,

said inertia member rotating in unison with said reel during rotation thereof in the unwind direction below a predetermined acceleration,

said reel rotating relative to said inertia member during rotation of said reel at the predetermined acceleration due to an abnormal acceleration of the cable, and

means operated in response to the relative rotation between the reel and inertia member for stopping rotation of said reel in the unwind direction to thereby restrain movement of the body in the vehicle.



COMPARISON OF ELEMENTS OF IMPROVEMENT PATENT NO. 2,845,234 WITH

Defendants' Devices, Patent No. 2,845,234 Device and Trolley Catcher Patents (Ham, Ricketts & Burdon)

Improvement Patent No. 2,845,234 Claim 5 (Exhibit 111)

a safety device for mounting in a vehicle to restrain the movement of a body within the vehicle when the body is subjected to relatively high acceleration movement relative to the vehicle comprising

a cable adapted to be coupled to the body,

a rotatably mounted cable reel having said cable secured thereon,

resilient means coupled to said reel for rotating said cable reel in a direction to wind said cable on said reel,

said reel rotating in the opposite direction to unwind said cable therefrom due to forces exerted by a pull on the cable,

a rotatably mounted inertia member,

means for yieldably coupling said inertia member to said reel to thereby cause said member to rotate with said reel during rotation in said unwind direction below a certain acceleration,

said means yielding during rotation at said certain acceleration to cause said reel to rotate relative to said inertia member, and

means associated with said coupling means operated when said reel rotates relative to said inertia member for stopping rotation of the reel in said unwind direction.

Def's' Devices See Plt's Exs. 84 & 85	Patent No. '234 See Plt's Exs. 75, 76 & 77	Ham Patent No. 700,763 See Defs' Ex. L	Ricketts Patent No. 1,393,570 See Defs' Ex. M	Burdon Patent No. 888,418 See Defs' Ex. N
YES	YES	NO	NO	NO
12	7 (including blue straps)	NO	NO	NO
2	19	E	9	C
10	39	F	25	NO
YES	YES	NO	NO	NO
38 (or 40)	32	C	35	W
46	22 and 55	5	37 and 33	S
YES	YES	YES	YES	YES
38 (or 40) 16 and 34	57 and 32	P and a ²	30 and 3	P and M

APPENDIX H.

Findings Alleged to Be in Error by Defendants With Record Pages Supporting the Findings Shown in Brackets.

9. On July 29, 1958, U.S. Letters Patents No. 2,845,233 and 2,845,234 were duly and legally issued to Pacific Scientific Aeroproducts [Exs. 1 and 2—patents in suit Exs. 131, 132—file histories], and plaintiff is now the owner of the Letters Patents by mesne assignments and has the right to bring this action for infringement thereof [R. Vol. III, p. 24].

12. The patented devices are safety apparatus for protecting a man in his seat consisting of an inertia reel adapted to be mounted on the back of a seat and connected to a shoulder strap or harness which is adapted to be coupled to the body of a seat occupant [Claims 7 and 9—basic patent '233 claims 1 and 5—improvement patent '234, R. Vol. III, p. 25].

13. The patented apparatus is intended for use on moving vehicles carrying people, such as aircraft [basic patent '233—Col. 1, lines 15-23, Col. 2, lines 15-50 and claims 7 and 9; improvement patent '234—Col. 1, lines 15-35, claims 1 and 5 and file histories—Ex. 131, p. 22; Ex. 132, p. 41, defendants' publication "The Project Engineer"—Ex. 51]. The patented apparatus gives the occupant of a seat in the vehicle freedom to operate controls and to move about under ordinary conditions. However, in the event of abnormal movement of the seat occupant with respect to the seat, such as would occur in a crash or a violent maneuver of the aircraft, the inertia reel locks and prevents further movement of the strap out of the reel, thus holding the occupant securely in his seat [McAllister at R. Vol. III, p. 25, Mr. Glauser at R. Vol. III, p. 742; patents in suit, Exs. 1, 2].

14. Prior to the development of plaintiff's safety apparatus, the sole American manufacturer of such apparatus was American Seating Company [R. Vol. III, pp. 203, 204]. Its devices responded to deceleration of the aircraft and hence were vehicle-sensitive and the response was unidirectional [vehicle-sensitive—R. Vol. III, pp. 30-31, 209-210, unidirectional—R. Vol. III, pp. 30-31, 204, 207]. The patented apparatus responds to abnormal movement or acceleration of the occupant of a seat with respect to the seat and hence is man-sensitive [Exs. 1 and 2; R. Vol. III, pp. 30-31, 100, 115, 206, 209, 290, 253] and the response is multidirectional [Ex. 1, pp. 38-42; R. Vol. III, p. 219].

15. Prior to the development of plaintiff's man-sensitive safety apparatus, the lives of Air Force pilots were being lost because of the deficiencies of the prior art vehicle-sensitive apparatus [R. Vol. III, pp. 271-273].

16. Plaintiff's man-sensitive safety apparatus overcame the deficiencies of the prior art vehicle-sensitive safety apparatus and represents a substantial contribution to science [R. Vol. III, pp. 219, 249, 253; Henrikson testified it represents "a significant stride forward in the art" R. Vol. III, p. 218].

19. Defendant AEROTEC INDUSTRIES, INC. placed an order with plaintiff for a large quantity of plaintiff's Model HR30 man-sensitive safety apparatus, but the order was apparently cancelled [R. Vol. III, p. 131], and subsequently defendant placed on the market man-sensitive safety apparatus of its own manufacture [R. Vol. III, pp. 86, 82-83].

20. In the Spring of 1958, plaintiff lost a contract to Douglas Aircraft Company for its man-sensitive safety apparatus and defendants obtained the contract and supplied man-sensitive safety apparatus which they man-

ufactured for Douglas DC-8 aircraft [Defendants' Publication Ex. 51, p. 2 (see caption under picture), R. Vol. III, pp. 86, 92, 93].

21. Defendants have continued to sell man-sensitive safety apparatus up to the date of the trial, and defendants threaten to continue this activity [R. Vol. III, pp. 90, 93; Ex. 127, Answer to Interrogatory No. 36].

22. Defendants models 65A, 94, 95 and 102 are man-sensitive safety apparatus, and they are exemplified by Exhibits 13, 81, 82, 83, 84, 85, 86 and 95 [Ex. 66; Ex. 95—defendants' Model 95 has locking mechanism identical to engineering drawings Exs. 54, 55, 56 and 57—R. Vol. III, p. 579 and the enlarged drawings of Exs. 84, 85 and 86; R. Vol. III, p. 588; the locking mechanisms of Ex. 54—assembly drawing for Model 94, Ex. 55—assembly drawing for Model 102, Ex. 57—assembly drawing for Model 65, are all locking mechanisms essentially identical to Ex. 89 on which Mr. Luttrell made his analysis and which is one half of the double reel shown in Ex. 13 (Model 65A)—R. Vol. III, pp. 436-439; Ex. 81 is a pictorial drawing depicting defendants' double reel Models 95 and 65 fastened at the top of a seat and Ex. 82 is a pictorial drawing depicting defendants' single reel models 94 and 102 fastened at the top of a seat—R. Vol. III, pp. 583-584].

26. Defendants' Models 65A, 94, 95 and 102 safety apparatus contain all of the structural elements of each of the aforesaid claims in the same functional relationship that is specified by each of the claims ['233 patent—R. Vol. III, pp. 588, 691-697, 698; '234 patent—R. Vol. III, pp. 703, 707-712, 713-714].

27. Defendants urged and their witnesses testified that their safety apparatus has a different mode of

operation in that their apparatus responds solely to velocity, and not to acceleration of the seat occupant, as required by the patented apparatus [R. Vol. I, p. 435—DEFENDANTS' MEMORANDUM PRIOR TO TRIAL PURSUANT TO LOCAL RULE 12, pp. 438-440]. However, defendants' own patent No. 2,982,492 [Ex. 66] which is directed to specific details of their safety apparatus, describes defendants' apparatus as being responsive to acceleration, and it does not describe it as responding to velocity at all. Defendants' application for this patent was filed on October 30, 1958, and the patent issued on May 2, 1961 [Ex. 66], all before the present action was instituted on January 21, 1963.

33. Force caused by acceleration of a seat occupant with respect to his seat is the primary force causing defendants' safety apparatus to lock and therefore defendants' devices are acceleration responsive within the meaning of the patents in suit [R. Vol. III, pp. 165, 586, 635, 1004, 1707].

34. Defendants' Models 65A, 94, 95 and 102 safety apparatus accomplish substantially the same result in substantially the same way as the devices of the patents in suit [R. Vol. III, pp. 165, 586, 635, 1004, 1707; Exs. 66, 100, 48-53].

35. The structural details of defendants' apparatus which are different from the structures shown in plaintiff's patent drawings are features which are not specified one way or another in the claims in suit which define the scope of the invention and hence such difference in details does not negate infringement. Examples of such structural details are the manual lock shown for embodiments of plaintiff's patent drawings but not employed in defendants' devices, and the reversal of the teeth and the pawls in plaintiff's and de-

defendants' devices [Claims 7 and 9 of Ex. 1; Claims 1 and 5 of Ex. 2].

36. The inventions of the patents in suit are basic with respect to man-sensitive safety apparatus which is acceleration responsive. [Prior to the man-sensitive safety apparatus of Exs. 1 and 2, only vehicle-sensitive types existed; R. Vol. III, p. 32].

37. The inventions of the patents in suit are of sufficient scope to cover the elimination of many of the detailed elements shown in the patent drawings and to cover rearrangement of the elements [Claims 7 and 9 of Ex. 1; claims 1 and 5 of Ex. 2].

38. The file histories of plaintiff's patents do not require as an element or feature of any of the claims in suit that the inertia element for the safety apparatus be separate from the locking means for the drum [File histories—Ex. 131, p. 36; Ex. 132]. Both the patented apparatus and defendants' apparatus employ inertia elements which are separate from the drum or reel [Exs. 1, 2, 66 (Col. 4), 72, 76, 85]. The proceedings in the Patent Office do not limit the scope of the claims in suit with respect to covering defendants' products [Ex. 131 (p. 36), Ex. 132].

40. The claims of plaintiff's patents are sufficiently set forth; they particularly point out and distinctly claim the subject matter of the inventions; and they adequately describe the patented devices [Mr. Glauser found each element of the claims in the respective patent devices, R. Vol. III, pp. 685-690, 700-701, 703-707, 713; Exs. 1 and 2].

41. The patented inventions were not known to others before the invention by the inventors of the patents in suit nor in public use for more than one year prior to the filing of the applications for the patents in suit [Oaths for patents in suit, Ex. 131, p. 16 and

Ex. 132, p. 15, prior to inventions only vehicle-sensitive devices existed, R. Vol. III, p. 32].

42. The inventors of the basic patent No. 2,845,233 were the first to conceive the technique of sensing the movement of a man with respect to his seat to cause him to be locked in his seat when abnormal acceleration is sensed, and the inventors were the first to follow up this concept with a model embodying the technique [Ex. 131—oath on p. 16 and Ex. 132—oath on p. 15].

43. The named inventors of the improvement patent No. 2,845,234, Messrs. Wrighton and Cushman, jointly contributed to the invention of the improvement patent [R. Vol. III, p. 385]. They jointly executed the patent application which in itself is *prima facie* evidence that it was a joint invention, and the burden of proving to the contrary has not been met by defendants [Ex. 132—oath on p. 15].

44. The named inventors of the patents in suit are the true inventors [Ex. 132—oath on p. 15; R. Vol. III, p. 385].

48. The prior patents showing trolley-catching devices are not as closely related to plaintiff's inventions as the prior patents considered by the Patent Office [Ex. D—Ham, Burdon and Ricketts trolley catcher patents, Geohegan, Nordmark '119, and Nordmark '693 vehicle-sensitive safety apparatus, and Sharpe cow-kicker patent].

49. The prior patents showing trolley-catching devices are heavy, bulky devices mounted outside a street-car for catching the trolley pole in the air in the event it disengages from the trolley wire and is moved vertically by a spring [R. Vol. III, p. 1732; Ex. D—Ham, Burdon and Ricketts] and thus the trolley-catching devices are for a markedly different purpose than keeping

a man in his seat in the event he is accelerated in any direction with respect to the seat. The trolley catching devices are not man-sensitive safety devices at all [R. Vol. III, pp. 1735, 1732].

50. Trolley catching devices are not multidirectional devices whereas the patented man-sensitive safety apparatus senses the movement of a man in any direction with respect to his seat and locks the man in his seat in the event of abnormal movement in any direction [Ex. D—Ham, Burdon and Ricketts; Exs. 1 and 2; R. Vol. III, p. 219].

51. Substantial redesign and reconstruction would be necessary to adapt a trolley catcher to serve as a man-sensitive safety apparatus, assuming that it could be done at all [R. Vol. III, pp. 1732-1733].

52. Although the prior patents showing trolley-catching devices issued around the turn of the century, such patents or devices were not considered by the inventors of the patents in suit [R. Vol. III, pp. 289, 351] nor by skilled engineers designing man-sensitive apparatus for plaintiff [R. Vol. III, pp. 448-449, 1735-1736], defendants and American Seating Company [R. Vol. III, p. 222] when man-sensitive safety apparatus was being first developed by these companies.

53. Before the inventions in suit only vehicle-sensitive safety apparatus was known for protecting a man in his seat in a moving vehicle while permitting the man to carry out his normal movements and it was not known that abnormal movement of the man could be sensed to cause the man to be locked in his seat as soon as the abnormal movement starts [R. Vol. III, pp. 32, 1728-1730]. At the time the inventions in suit were made, it would not have been obvious to one skilled in the art of safety apparatus for protecting a man in his seat that abnormal movement of a man

could be sensed to cause the man to be locked in his seat at the very outset of the abnormal movement [Air Force personnel who were used to vehicle-sensitive devices at first tried to trick plaintiff's device, R. Vol. III, p. 278; it was a new concept to sell to the trade (Air Force); R. Vol. III, p. 319; American Seating Company worked on vehicle-sensitive devices to try and eliminate deficiencies of prior art and it took plaintiff's man-sensitive devices to prompt development on man-sensitive devices [R. Vol. III, p. 211].

55. Defendants presented no testimony or evidence to explain their contradictory positions concerning the trolley-catcher patents. Prior to this action, defendants took the position that the trolley-catcher patents are not pertinent with reference to the patentability of man-sensitive safety apparatus [defendants did not call attention of Patent Office to trolley catchers of Ham, Burdon and Ricketts, Ex. D, in connection with defendants' patent (Ex. 66)—see file history Ex. 100 and R. Vol. III, p. 752 even though defendants' patent Ex. 66 issued in May 1961 and defendants knew about the Ham, Burdon and Rickett's patents prior thereto in September 1960—Answer to Interrogatory No. 27 of Ex. 124 and R. Vol. III, p. 109; defendants admit that Ex. 66 discloses their commercial devices—R. Vol. III, p. 1102, Ex. 127—Answer to Interrogatory No. 41; and defendants' vice president told plaintiff he considered the trolley catchers to more closely resemble defendants' devices Ex. 133, p. 2], yet during the trial defendants contended that the trolley-catcher patents are pertinent.

56. The purpose of plaintiff's and defendants' man-sensitive safety apparatus is markedly different from the purpose of the trolley-catching devices of the prior patents and thus, these patents are non-analogous art

[Purpose of patented devices, R. Vol. III, pp. 25, 1736; Ex. 1, par. 8; Ex. 2, par. 1; purpose of trolley catchers; R. Vol. III, p. 1736].

57. Plaintiff's claims in suit do not read on, and are not anticipated by the trolley-catching devices shown in the prior patents because the claims require in various terms safety apparatus for preventing a seat occupant of a vehicle from being thrown off his seat, an inertia lock device adapted to be mounted on the back of a seat, a flexible connector or cable adapted to be coupled to the seat occupant within the vehicle, and means for sensing the acceleration of the flexible connector caused by forces acting on the seat occupant to retain the seat occupant in his seat in the event of an abnormal movement of the occupant with respect to the seat [Claims 7 and 9 of Ex. 1; claims 1 and 5 of Ex. 2; Ex. D—Ham, Burdon and Ricketts, R. Vol. III, pp. 197-198, 1735-1736]. These elements and features and functional relationships are not disclosed by the trolley catcher patents and thus, plaintiff's claims require elements and features and functional relationships which are not shown by the prior art.

58. The prior art cited by the Patent Office and the additional prior art trolley-catcher patents cited by defendants, taken singly or in combination, does not anticipate the inventions of the patents in suit [Ex. D, R. Vol. III, pp. 30-31, 1735-1736].

59. When plaintiff proposed its man-sensitive safety apparatus to Air Force representatives, they were skeptical and doubted that apparatus which responded to movement of a man with respect to his seat would function satisfactorily [R. Vol. III, p. 276]. This doubt was later dispelled and large numbers of man-sensitive safety apparatus have been purchased by the Air Force [R. Vol. II, pp. 280-281].

60. American Seating Company was the sole manufacturer of vehicle-sensitive safety apparatus at the time plaintiff started marketing its man-sensitive safety apparatus [R. Vol. III, pp. 30, 203]. Plaintiff's sales of man-sensitive safety apparatus have increased markedly from the time it was accepted in the market [Exs. 24, 25, 26, 27, 28], including a period when sales of manned aircraft were severely cut back [R. Vol. III, p. 60, Ex. 26], and at the same time the sales of vehicle-sensitive safety apparatus by American Seating Company declined rapidly [Exs. 62, 217]. The man-sensitive safety apparatus was the primary cause for the decline in sales of vehicle-sensitive safety apparatus [R. Vol. III, p. 217].

61. Highly qualified engineers for the American Seating Company endeavored without success for many years to develop a multi-directional safety apparatus to overcome the shortcomings of the unidirectional response of their vehicle-sensitive apparatus, [R. Vol. III, pp. 205, 208-209; Ex. D, Nordmark '693 filed February 1951], and when they became aware of plaintiff's man-sensitive safety apparatus, they developed a man-sensitive apparatus of their own [R. Vol. III, pp. 210, 211-212] and took a license from plaintiff under the two patents in suit [Ex. 17].

62. The inventions in plaintiff's basic and improvement patents filled a long standing want and demand in the industry [R. Vol. III, pp. 271-272, 219, 253-254].

63. The subject matter of the patents in suit was not obvious to the military services which had a great need for such safety apparatus, because the lives of pilots were being lost [R. Vol. III, pp. 271-272]; it was not obvious to the highly skilled engineers of American Seating Company who were endeavoring to overcome

the shortcomings of their vehicle-sensitive safety apparatus [prompted by need for multi-directional device American Seating Company tried to develop multidirectional vehicle-sensitive devices—R. Vol. III, pp. 205-207, plaintiff's man-sensitive devices prompted American Seating Company to develop its man-sensitive device—R. Vol. III, p. 211]; and the Air Force was skeptical of the man-sensitive concept [R. Vol. III, pp. 276, 280]. The subject matter of the patents in suit was not obvious to one skilled in the art, and the inventions produced surprising results (locking a man in his seat in a small fraction of a second due to abnormal acceleration of the man in any direction by sensing the acceleration of the man with respect to his seat) [R. Vol. III, p. 1729] using a technique which the Air Force did not think would work satisfactorily [R. Vol. III, pp. 276, 280].

64. Plaintiff's claims in suit specify structural elements and functional relationships which are new and which produce a new and useful result. Saving lives of pilots and the like by sensing movement of the pilot in any direction with respect to his seat [Ex. 1, par. 10; R. Vol. III, p. 219] and securing him in his seat with his safety harness in the event of abnormal movement of the pilot, in a small fraction of a second after the abnormal movement starts, yet permitting normal movements of the pilot [R. Vol. III, pp. 741-742], provides a substantial contribution to the art, and the patented inventions promote the progress of science and the useful arts [Mr. Henrikson of American Seating Company stated it represents a "step forward" over the earlier devices—R. Vol. III, p. 219].

65. Plaintiff has obtained issuance of foreign patents corresponding to the basic patent No. 2,845,233 in Great Britain [Ex. 33], France [Ex. 34], Canada

[Ex. 36] and Japan [Ex. 35], and corresponding to the improvement patent no. 2,845,234 in Great Britain [Ex. 37], France [Ex. 38], Canada [Ex. 41], West Germany [Ex. 39], and Japan [Ex. 40]. Plaintiff has licensees in the United States under the United States patents [Exs. 17, 18] and licensees under the foreign counterparts of these patents in France [Exs. 22, 23], England [Exs. 19, 20], and Japan [Ex. 21]. Substantial royalties have been paid to plaintiff under the licenses [R. Vol. III, pp. 39-40, 45].

66. Plaintiff is actively engaged in the manufacture and sale of man-sensitive safety apparatus and is the major supplier of this apparatus in the United States [Ex. 24 shows plaintiff's total sales of man-sensitive devices and Ex. 26 shows total world-wide sales by all companies of these devices, the difference shows plaintiff as the major supplier].

67. About ninety percent of the total world market for safety apparatus for protecting a man in his seat is now filled by the man-sensitive type safety apparatus, and the man-sensitive type has largely supplanted the prior art vehicle-sensitive type [R. Vol. III, pp. 68, 229].

68. The patented inventions in a suit received wide acceptance in the military services and the commercial aircraft industry, and the inventions have achieved a high degree of commercial success in the United States and in foreign countries [R. Vol. III, pp. 68-69, 62-64; Exs. 24, 25, 26].

69. Plaintiff has received world-wide recognition of its contribution in its basic and improvement patents [R. Vol. III, pp. 68-69, 62-64; Exs. 24, 25, 26, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41].

70. It was plaintiff's man-sensitive safety apparatus which prompted defendants to start marketing man-

sensitive safety apparatus and not the trolley-catcher patents which defendants discovered after they had already started marketing the apparatus [Defendants became aware of plaintiff's man-sensitive devices in 1954 when they were shipped four of the devices—R. Vol. III, pp. 90-91; defendants did not become aware of the trolley catcher patents until September 1960—answer to Interrogatory No. 27 of Ex. 124 and R. Vol. III, p. 1091].

71. Defendants employed the essential features of the man-sensitive safety apparatus of plaintiff's inventions [elements of claims in suit contained in defendants' devices—claims 7 and 9 of '233 patent—R. Vol. III, pp. 691-697, 698; claims 1 and 5 of '234 patent—R. Vol. III, pp. 707-714; '233 and '234 patent devices and defendants' devices have same mode of operation—R. Vol. III, pp. 741-742, 165, 485-486, 635, 627, 1004, 1707-1708]; and wilfully and deliberately infringed plaintiff's patent rights without justification [Plaintiff gave notice of its patent rights to Mr. Lautier, defendants' vice president before its patents issued and at the time they issued—Exs. 42, 43, 44, 45, 46 and R. Vol. III, pp. 87-89; defendants refused to respect plaintiff's patent rights—R. Vol. III, p. 90; defendants started selling their devices in 1958 and continued to do so—R. Vol. III, pp. 90, 93, Ex. 127—answers to Interrogatory Nos. 35 and 36].

72. Claims 7 and 9 of plaintiff's patent No. 2,845,233 and claims 1 and 5 of plaintiff's patent No. 2,845,234 are valid and they are infringed by defendants' Models 65A, 94, 95 and 102 safety reels [The foregoing 71 findings and record references therein].

73. Every conclusion set forth in the conclusions of law which is deemed to be a finding of fact is hereby incorporated herein as a finding of fact.

APPENDIX I.

Plaintiff's Exhibits.

(Pages in Record
Vol. III)

<u>Ex.</u>	<u>Description</u>	<u>For Ident.</u>	<u>In Evid.</u>
27	Plaintiff's sales books	48	53
116	Movie film	1015	1054
117	Tube	1008	1054

